SERVICE MANUAL

FLOOR & CEILING SERIES

ASF-12A, ASF-18A, ASF-24A, ASF-30A

ASF-36, ASF-48A, AS-60A

sinclair

AIR CONDITIONING

Contents

Part 1 General information……2

Part 2 Indoor units……5

Part 3 Outdoor units……..36

Part 4 Installation……..……64

Part 5 Control……..72

Part 1
General Information

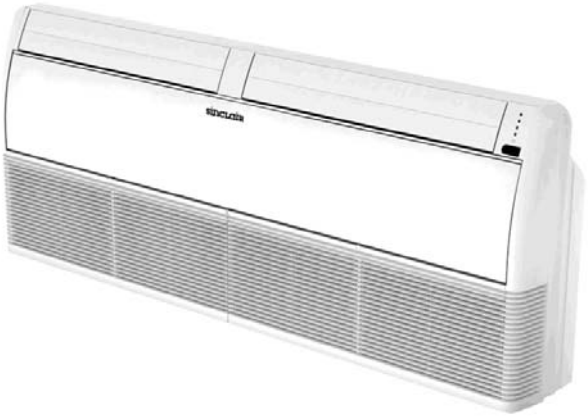
1. Model names of units……..……3
2. External Appearance……...3
3. Nomenclature……4
4. Features……..4

1. Model names of units

ASF-12A
ASF-18A
ASF-24A
ASF-30A
ASF-36A
ASF-48A
ASF-60A

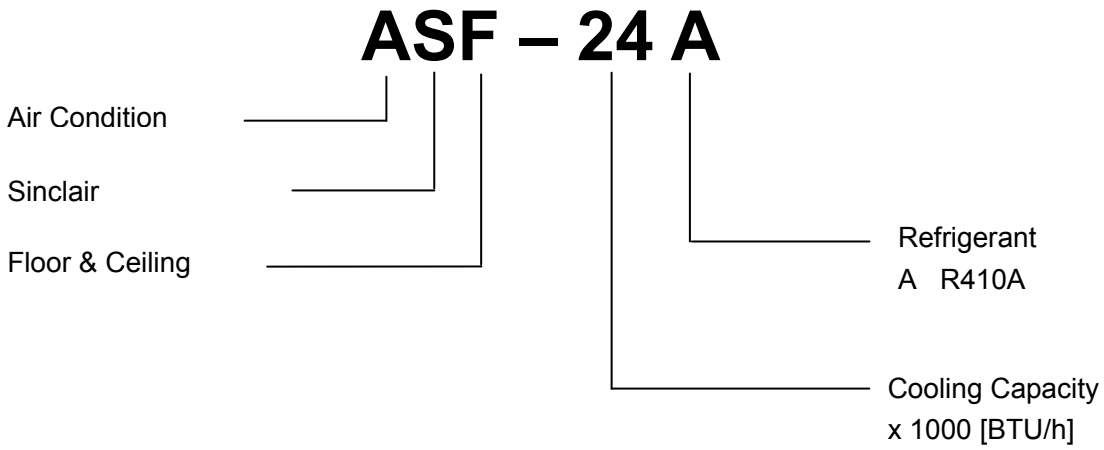
2. External Appearance

2.1 Indoor units



2.2 Outdoor units

3. Nomenclature



4. Features

4.1. New design, more modern and elegant appearance;

4.2. Convenient installation;

4.3. Two direction auto swing (vertical & horizontal) and wide angle air flow;

4.4. Three level fan speed, more humanism design, meets different air-supply requirement;

4.5. Water proof by utilizing the absorbing plastic film on water collector;

4.6. Easy operation. Auto-restart function, remote control and optional wire control method;

4.7. Low noise level plus compact size;

4.8. Universal outdoor design

Part 2
Indoor units

Ceiling & Floor Type……6

Ceiling & Floor Type

1. Features……..7
2. Specification……..8
3. Dimensions……..14
4. Service space……..15
5. Piping diagrams……..16
6. Wiring diagrams……..17
7. Capacity Tables……...20
8. Air Velocity and Temperature Distributions……27
9. Electric Characteristics……29
10. Sound Levels……...30
11. Exploded view……32

1. Features

1.1. New design, more modern and elegant appearance.

1.2. Convenient installation

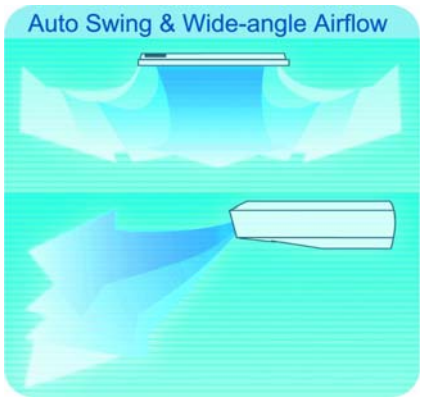
--The ceiling type can be easily installed into a corner of the ceiling even if the ceiling is very narrow

--It is especially useful when installation of an air conditioner in the center of the ceiling is impossible due to a structure such as one lighting

1.3. Two direction auto swing (vertical & horizontal) and wide angle air flow

--Air flow directional control minimizes the air resistance and produces wilder air flow to vertical direction.

--The range of horizontal air discharge is widened which secures wider air flow distribution to provide more comfortable air circulation no matter where the unit is set up



1.4. Three level fan speed, more humanism design, meets different air-supply requirement.

1.5. Water proof by utilizing the absorbing plastic film on water collector

1.6. Easy operation. Auto-restart function, remote control and optional wire control method.

1.7. Low noise level plus compact size

--Shape of the blades has been improved to prevent noise caused by turbulence.

2. Specification

Cooling & Heating

Model			ASF-12A	ASF-18A	ASF-24A
Power supply		Ph-V-Hz	1,220-240V,50Hz	1,220-240V,50Hz	1,220-240V,50Hz
Cooling	Capacity	Btu/h	12000	18000	24000
	Capacity	kW	3.5	5.4	7.1
	Input	W	1200	1900	2700
	Rated current	A	6.0	8.5	12.0
	EER	Btu/W.h	10.0	9.7	8.9
Heating	Capacity	Btu/h	13000	20500	27300
	Capacity	kW	3.8	6	8
	Input	W	1130	1850	2800
	Rated current	A	5.0	8.0	12.5
	COP	Btu/W.h	11.6	11.1	9.8
Moisture Removal		L/h	1.2	1.8	2.4
Max. input consumption		W	1500	2400	3300
Max. current		A	7.0	11.5	14.5
Starting current		A	26	36.8	61
Compressor	Model		PA140X2C-4FT	PA225X2CS-4KU	PA290X3CS-4MU1
	Type		ROTARY	ROTARY	ROTARY
	Brand		TOSHIBA	TOSHIBA	TOSHIBA
	Supplier		TOSHIBA (Guangdong)	TOSHIBA (Guangdong)	TOSHIBA (Guangdong)
	Capacity	Btu/h	11567	18834	24498
	Input	W	1145	1870	2430
	Rated current(RLA)	A	5.3	8.75	11.4
	Locked rotor Amp(LRA)	A	26	36.8	61
	Thermal protector		INNER	INNER	INNER
	Capacitor	uF	35/370 μF/V	50/370 μF/V	50/400 μF/V
	Refrigerant oil	ml	RB68AF/T68/A68tf 480	ESTER OIL VG74 750	ESTER OIL CG74 950
Indoor fan motor	Model		YSK25-6L	YSK55-4L	YSK55-4L
	Input	W	104/98	110/104/98	110/104/98
	Capacitor	uF	1.5uF/450V	2.5uF/450V	2.5uF/450V
	Speed(hi/lo)	r/min	1190/1000/890	1280/ 1190/1000	1280/ 1190/1000
Indoor coil	Number of rows		2	3	3
	Tube pitch(a) x row pitch(b)	mm	25.4×22	25.4×22	25.4×22
	Fin spacing	mm	1.7	1.7	1.7
	Fin type		Hydrophilic aluminum	Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia. and type	mm	Φ9.53 innergroove tube	Φ9.53 innergroove tube	Φ9.53 innergroove tube
	Coil length x height x width	mm	804×254×44	804×254×66	804×254×66
Indoor air flow(Hi/Mid/Lo)		m^3/h	600/480/400	800/600/500	1000/900/700

Indoor noise level (Hi/Mid/Lo)		**dB(A)**	43/41/38	43/41/38	45/43/40
Indoor unit	**Dimension (WxHxD)(body)**	**mm**	995×660×198	995×660×198	995×660×198
	Packing (WxHxD)(body)	**mm**	1075×744×278	1075×744×278	1075×744×278
	Net/Gross weight(body)	**kg**	29/35	30/37	30/37
Outdoor fan motor	**Model**		YDK24-6F	YDK53-6K	YDK53-6H
	Input	**W**	56	130	130
	Capacitor	**uF**	2.5uF/450V	2.5 uF/450V	3μF/450V
	Speed	**r/min**	800	750	800
Outdoor coil	**Number of rows**		2	2	2
	Tube pitch(a)x row pitch(b)	**mm**	25.4 x22	25.4×22	25.4×22
	Fin spacing	**mm**	1.4	1.7	1.5
	Fin type		Hydrophilic aluminum	Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia. and type	**mm**	φ9.53x0.35,Innergroove tube	Φ9.53,Innergroove tube	Φ9.53,innergroove tube
	Coil length x height x width	**mm**	651x559x44	775×660×44	850×810×44
	Number of circuits		2	3	4
Outdoor air flow		**m^3/h**	2100	2400	3000
Outdoor noise level		**dB(A)**	43	48	55
Outdoor unit	**Dimension(WxHxD)**	**mm**	760×590×285	845×695×335	895×860×330
	Packing (WxHxD)	**mm**	887x655x355	970X770X395	1043X915X395
	Net/ Gross weight	**kg**	44/48	57/62	68/70
Refrigerant type/Quantity		**g**	R410A/1120	R410A/2050	R410A/2600
Design pressure (high side/low side)		**MPa**	4.2/2.5	4.2/2.5	4.2/2.5
Refrigerant piping	**Liquid side**	**mm(inch)**	6.35 (1/4)	6.35 (1/4)	9.53 (3/8)
	Gas side	**mm(inch)**	12.7 (1/2)	12.7 (1/2)	16 (5/8)
	Max. pipe length	**m**	25	25	30
	Max. difference in level	**m**	15	15	15
Operation temp		**°C**	17~30	17~30	17~30
Ambient temp		**°C**	-7~45	-7~45	-7~45
Application area		**m^2**	18~26	34~49	40~56
Qty'per 20'& 40'Fcl		**Pieces**	63/138/155	49/104/126	44/94/101

Model			ASF-30A	ASF-36A
Power supply		Ph-V-Hz	1,220-240V,50Hz	3,380V,50Hz
Cooling	Capacity	Btu/h	30000	36000
	Capacity	kW	9.2	10.5
	Input	W	3750	3750
	Rated current	A	16.3	6.6
	EER	Btu/W.h	8.0	9.6
Heating	Capacity	Btu/h	32000	39000
	Capacity	kW	9.4	11.4
	Input	W	3500	3700
	Rated current	A	15.2	6.5
	COP	Btu/W.h	9.2	10.6
Moisture Removal		L/h	3	3.8
Max. input consumption		W	4620	4400
Max. current		A	21	8.0
Starting current		A	97	61
Compressor	Model		C-SBN301H5D	C-SBN303H8D
	Type		SCROLL	SCROLL
	Brand		SANYO	SANYO
	Supplier		SANYO	SANYO(Dalian)
	Capacity	Btu/h	33438	33438
	Input	W	3650	3650
	Rated current(RLA)	A	17.65	6.58
	Locked rotor Amp(LRA)	A	97	61
	Thermal protector		INNER	INNER
	Capacitor	uF	60uF/440V	/
	Refrigerant oil	ml	FV68S 1700	DAPHNE FV68S 1700
Indoor fan motor	Model		YSK80-4A	YSK80-4A
	Input	W	142/134/132	142/134/132
	Capacitor	uF	3.5uF/450V	3.5uF/450V
	Speed(hi/lo)	r/min	1310/1200/1000	1310/1200/1000
Indoor coil	Number of rows		3	3
	Tubepitch(a)x row pitch(b)	mm	25.4×22	25.4×22
	Fin spacing	mm	1.7	1.7
	Fin type		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia.and type	mm	Φ9.53, inner groove tube	Φ9.53, inner groove tube
	Coil length x height x width	mm	905×203×66	905×203×66
Indoor air flow(Hi/Mid/Lo)		m^3/h	1400/1200/1000	1400/1200/1000
Indoor noise level (Hi/Mid/Lo)		dB(A)	45/43/40	45/43/40
Indoor unit	Dimension (WxHxD)(body)	mm	1285×660×198	1285×660×198
	Packing (WxHxD)(body)	mm	1365×744×278	1365×744×278

	Net/Gross weight(body)	**kg**	34/42	34/42
Outdoor fan motor	**Model**		YDK250-6D	YDK250-6D
	Input	**W**	307	307
	Capacitor	**uF**	10 uF/450V	10 uF/450V
	Speed	**r/min**	740	740
Outdoor coil	**Number of rows**		2	2
	Tube pitch(a)x row pitch(b)	**mm**	25.4×22	25.4×22
	Fin spacing	**mm**	1.7	1.7
	Fin type		unhydrophilic aluminium	unhydrophilic aluminum
	Tube outside dia.and type	**mm**	Φ9.53, inner groove tube	Φ9.53, inner groove tube
	Coil length x height x width	**mm**	955×915×44	955×915×44
	Number of circuits		8	8
Outdoor air flow		**m^3/h**	5000	5000
Outdoor noise level		**dB(A)**	57	57
Outdoor unit	**Dimension(WxHxD)**	**mm**	990×960×360	990×960×360
	Packing (WxHxD)	**mm**	1120X1090X435	1120X1090X435
	Net/ Gross weight	**kg**	90/102	90/102
Refrigerant type/Quantity		**g**	R410A 3450	R410A/3100
Design pressure (high side/low side)		**MPa**	4.2/2.5	4.2/2.5
Refrigerant piping	**Liquid side**	**mm(inch)**	12.7 (1/2)	12.7 (1/2)
	Gas side	**mm(inch)**	19 (3/4)	19 (3/4)
	Max. pipe length	**m**	30	30
	Max. difference in level	**m**	20	20
Operation temp		**°C**	17~30	17~30
Ambient temp		**°C**	-7~45	-7~45
Application area		**m^2**	60~85	60~85
Qty'per 20'& 40'Fcl		**Pieces**	27/55/62	27/55/62

Model			ASF-48A	ASF-60A
Power supply		Ph-V-Hz	3,380V,50Hz	3,380V,50Hz
Cooling	Capacity	Btu/h	48000	60,000
	Capacity	kW	14	17
	Input	W	4700	6000
	Rated current	A	8.2	9.8
	EER	Btu/W.h	10.2	10.0
Heating	Capacity	Btu/h	52000	68,000
	Capacity	kW	15.2	20
	Input	W	4900	6000
	Rated current	A	8.6	9.8
	COP	Btu/W.h	10.6	11.4
Moisture Removal		L/h	4.8	6
Max. input consumption		W	5870	7500
Max. current		A	10.7	12.8
Starting current		A	66	67
Compressor	Model	-	C-SBN373H8D	C-SBN453H8D
	Type	-	SCROLL	SCROLL
	Brand	-	SANYO	SANYO
	Supplier	-	SANYO(Dalian)	SANYO(Dalian)
	Capacity	Btu/h	48109	55957
	Input	W	4750	5750
	Rated current(RLA)	A	8.22	9.77
	Locked rotor Amp(LRA)	A	66	67
	Thermal protector		INNER	INNER
	Capacitor	uF	/	/
	Refrigerant oil	ml	DAPHNE FV68S 1700	DAPHNE FV68S 1700
Indoor fan motor	Model		YSK59-4A	YSK59-4A
	Input	W	118/108/101	118/108/101
	Capacitor	uF	2.5uF/450V	2.5uF/450V
	Speed(hi/lo)	r/min	820/695/620	820/695/620
Indoor coil	Number of rows		3	3
	Tube pitch(a)x row pitch(b)	mm	25.4X22	25.4X22
	Fin spacing	mm	1.7	1.7
	Fin type		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia. and type	mm	Φ9.53, inner groove tube	Φ9.53, inner groove tube
	Coil length x height x width	mm	1150x254x66	1150x254x66
Indoor air flow(Hi/Mid/Lo)		m^3/h	2000/1800/1600	2000/1800/1600
Indoor noise level (Hi/Mid/Lo)		dB(A)	47/45/42	47/45/42
Indoor unit	Dimension (WxHxD)(body)	mm	1670×680×240	1670×680×240
	Packing (WxHxD)(body)	mm	1764×760×329	1764×760×329
	Net/Gross weight(body)	kg	52/62	52/62

Outdoor fan motor	**Model**		YDK65-6; YDK65-6F	YDK65-6F; YDK65-6F
	Input	**W**	138+156	138+156
	Capacitor	**uF**	3.5×2 uF/450V	3.5×2 uF/450V
	Speed	**r/min**	800	800
Outdoor coil	**Number of rows**		2	2
	Tube pitch(a)x row pitch(b)	**mm**	25.4×22	25.4×22
	Fin spacing	**mm**	1.8	1.8
	Fin type		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia. and type	**mm**	Φ9.53, inner groove tube	Φ9.53, inner groove tube
	Coil length x height x width	**mm**	715×1220×44	715×1220×44
	Number of circuits		4	4
Outdoor air flow		**m^3/h**	6000	6000
Outdoor noise level		**dB(A)**	58	58
Outdoor unit	**Dimension(WxHxD)**	**mm**	940×1245×340	940×1245×340
	Packing (WxHxD)	**mm**	1058X1380X435	1058X1380X435
	Net/ Gross weight	**kg**	112/127	112/127
Refrigerant type/Quantity		**g**	R410A/4000	R410A/4200
Design pressure (high side/low side)		**MPa**	4.2/2.5	4.2/2.5
Refrigerant piping	**Liquid side**	**mm(inch)**	12.7 (1/2)	12.7 (1/2)
	Gas side	**mm(inch)**	19 (3/4)	19 (3/4)
	Max. pipe length	**m**	50	50
	Max. difference in level	**m**	30	30
Operation temp		**°C**	17~30	17~30
Ambient temp		**°C**	-7~45	-7~45
Application area		**m^2**	80~105	95~120
Qty'per 20'& 40'Fcl		**Pieces**	25/50/54	25/50/54

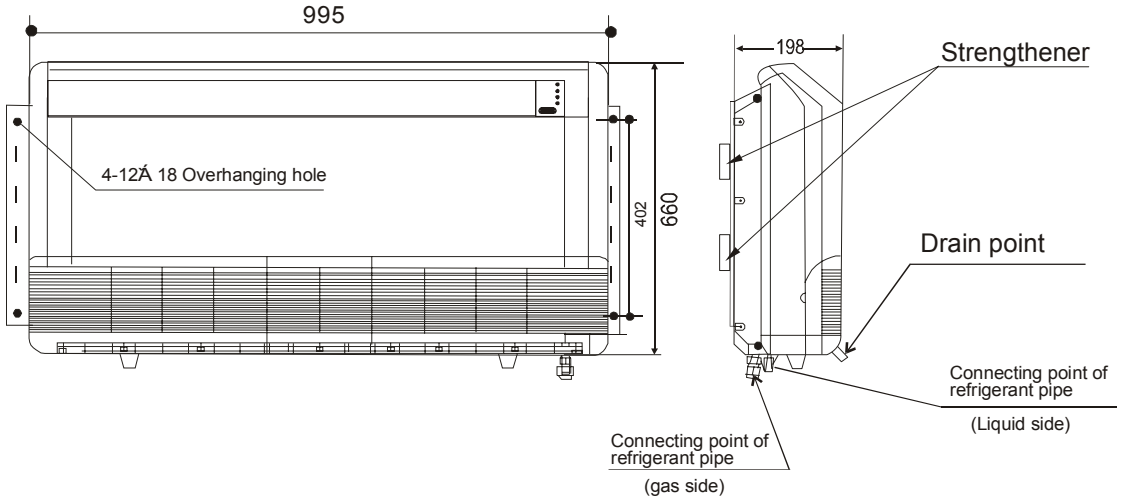
Notes: 1. Nominal cooling capacities are based on the following conditions:
Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB;

2. Nominal heating capacities are based on the following conditions:
Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB;

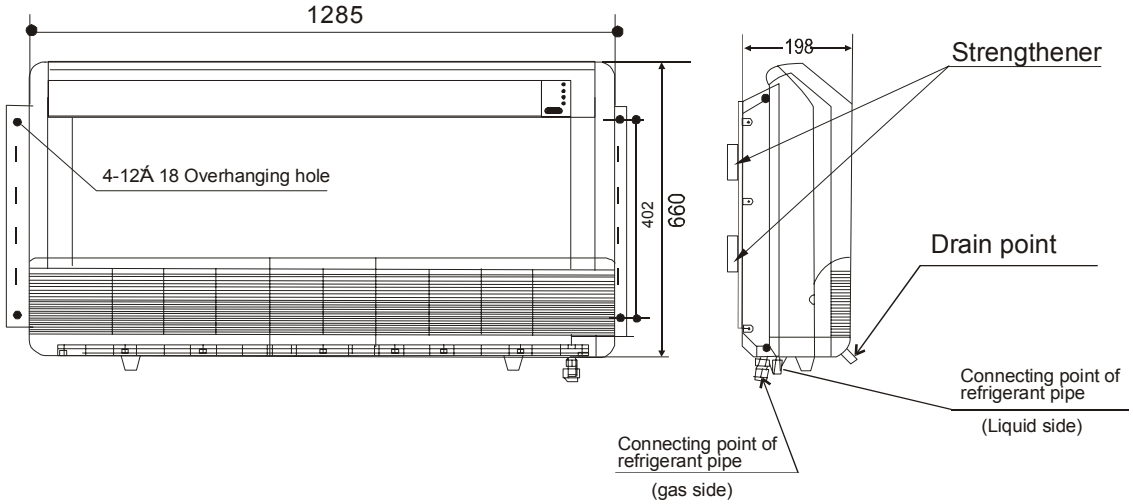
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

3. Dimensions

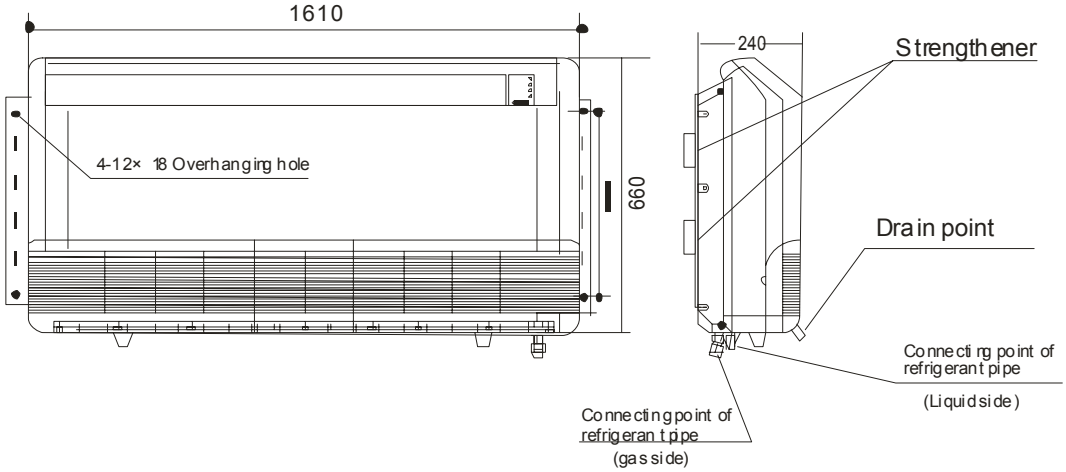
3.1. ASF-12A ASF-18A ASF-24A



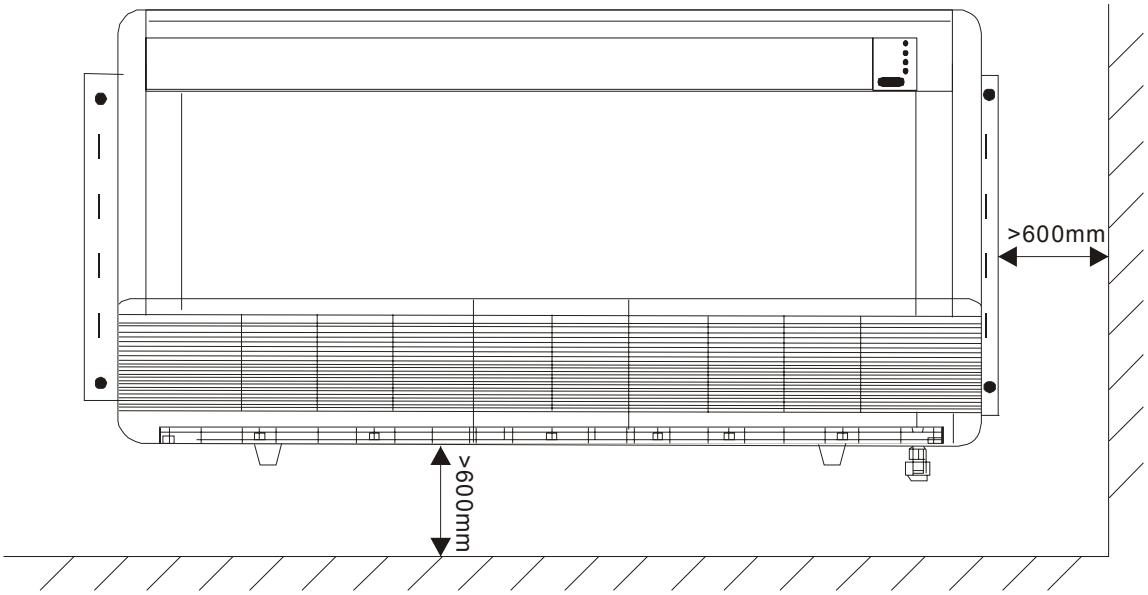
3.2. ASF-30A ASF-36A



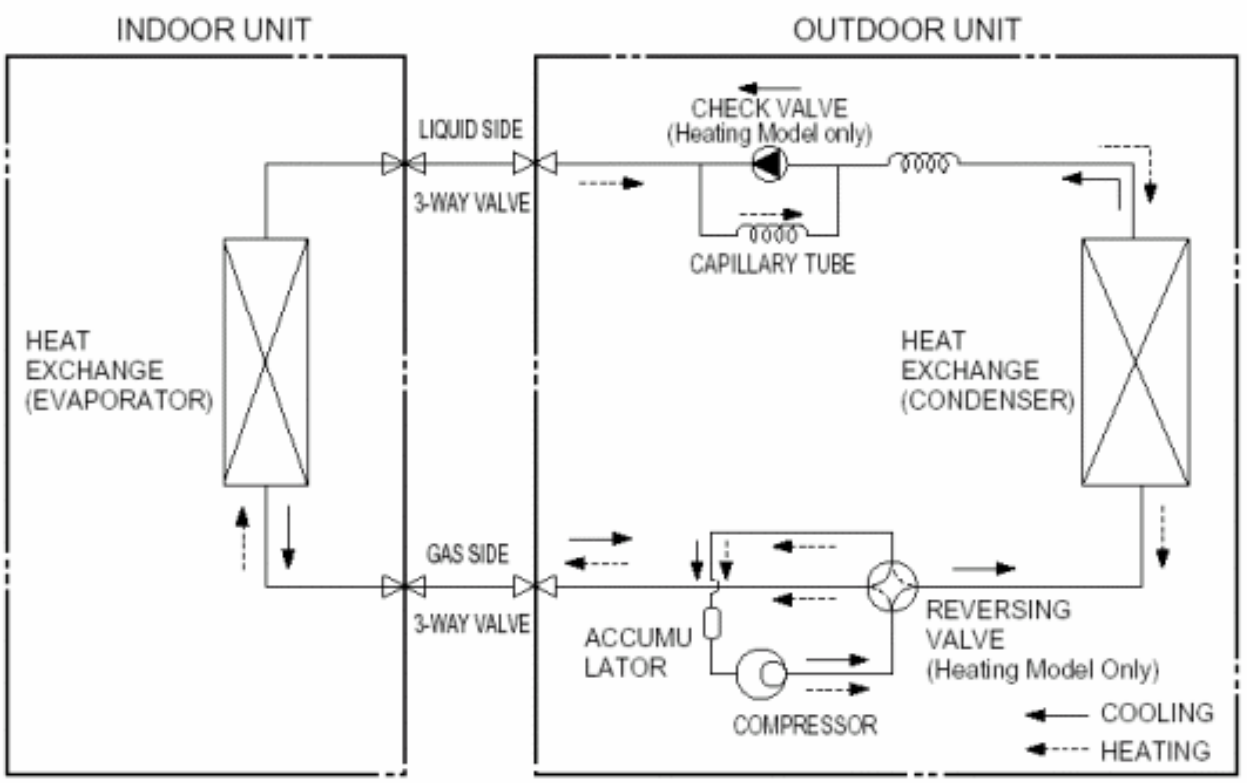
3.3. ASF-48A ASF-60A



4. Service space



5. Piping Diagrams

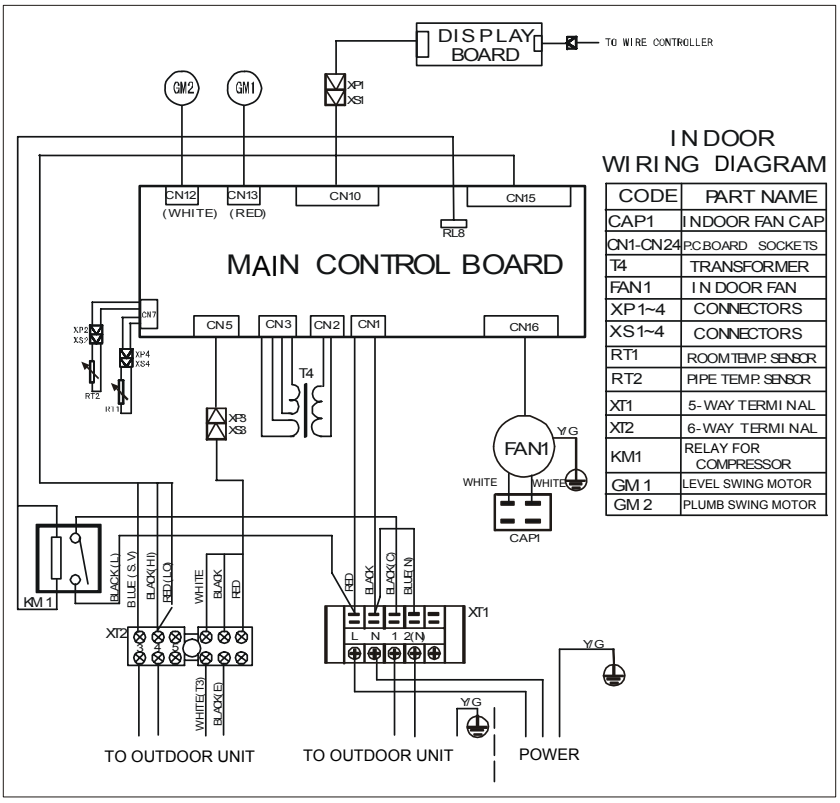


Remark: 1. For ASF-12A and ASF-18A, accumulator is not included.

2. For ASF-30A, ASF-36A and ASF-48A, check valve and auxiliary capillary is not included.

6. Wiring Diagrams

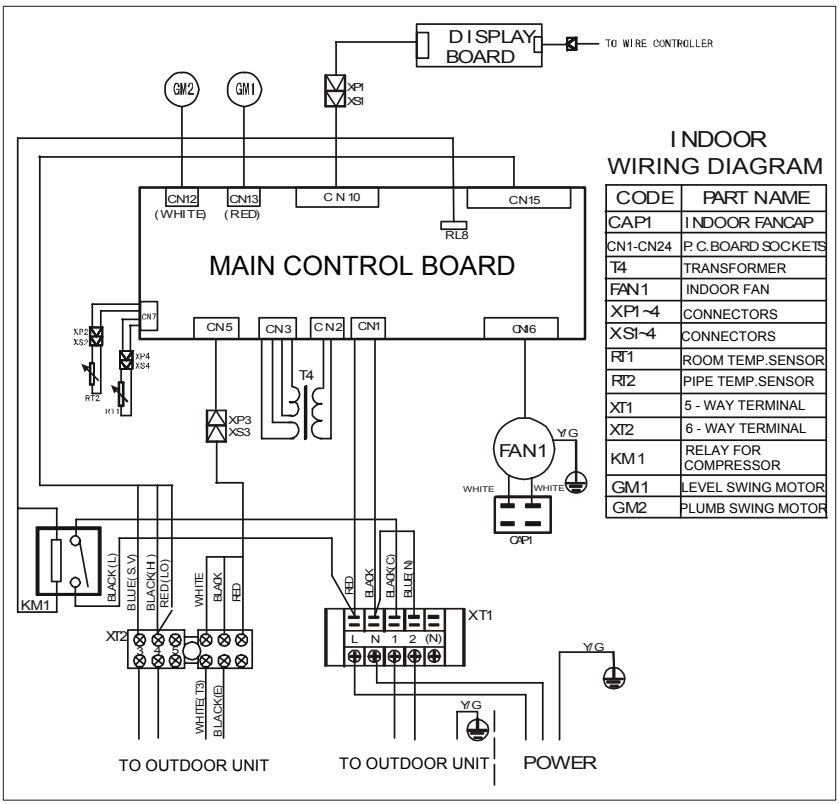
6.1 ASF-12A



INDOOR WIRING DIAGRAM

CODE	PART NAME
CAP1	INDOOR FAN CAP
CN1-CN24	P.C.BOARD SOCKETS
T4	TRANSFORMER
FAN1	IN DOOR FAN
XP1~4	CONNECTORS
XS1~4	CONNECTORS
RT1	ROOM TEMP. SENSOR
RT2	PIPE TEMP. SENSOR
XT1	5-WAY TERMINAL
XT2	6-WAY TERMINAL
KM1	RELAY FOR COMPRESSOR
GM1	LEVEL SWING MOTOR
GM2	PLUMB SWING MOTOR

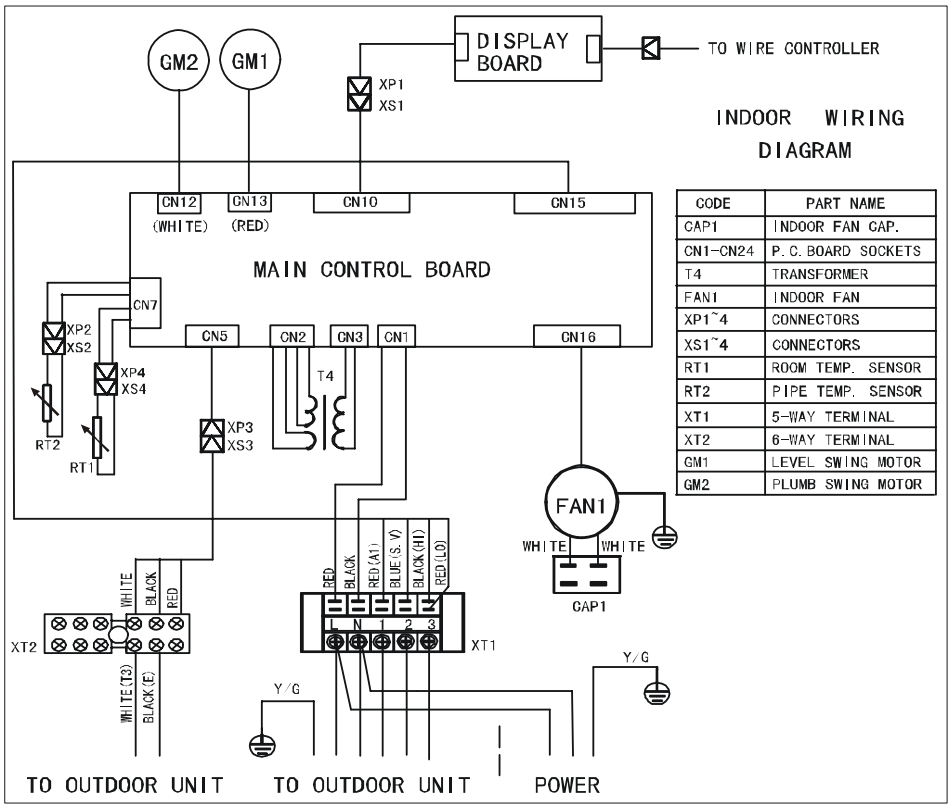
6.2 ASF-18A



INDOOR WIRING DIAGRAM

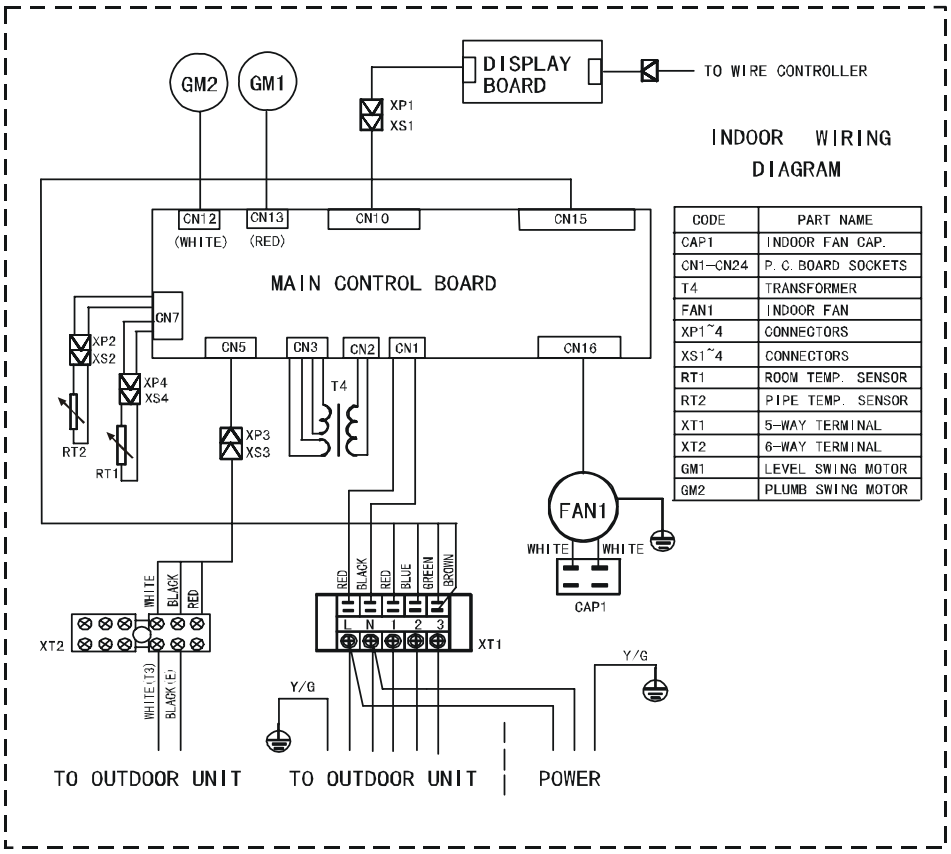
CODE	PART NAME
CAP1	INDOOR FANCAP
CN1-CN24	P.C.BOARD SOCKETS
T4	TRANSFORMER
FAN1	INDOOR FAN
XP1~4	CONNECTORS
XS1~4	CONNECTORS
RT1	ROOM TEMP.SENSOR
RT2	PIPE TEMP.SENSOR
XT1	5 - WAY TERMINAL
XT2	6 - WAY TERMINAL
KM1	RELAY FOR COMPRESSOR
GM1	LEVEL SWING MOTOR
GM2	PLUMB SWING MOTOR

6.3 ASF-24A



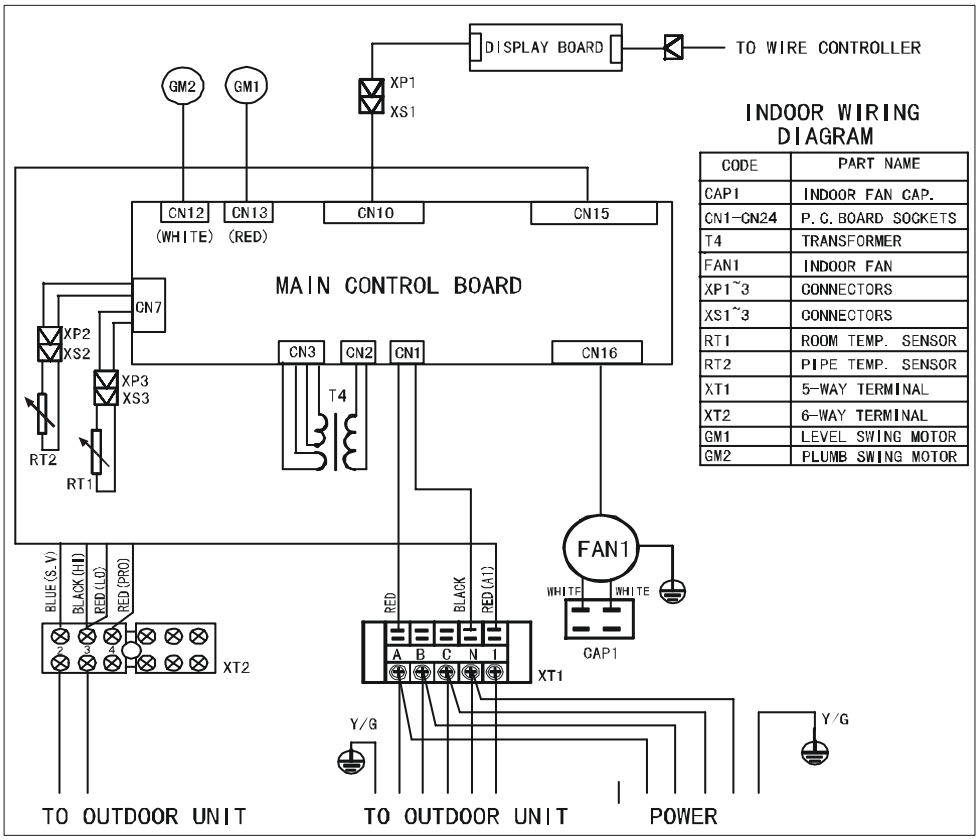
CODE	PART NAME
CAP1	INDOOR FAN CAP.
CN1-CN24	P. C. BOARD SOCKETS
T4	TRANSFORMER
FAN1	INDOOR FAN
XP1~4	CONNECTORS
XS1~4	CONNECTORS
RT1	ROOM TEMP. SENSOR
RT2	PIPE TEMP. SENSOR
XT1	5-WAY TERMINAL
XT2	6-WAY TERMINAL
GM1	LEVEL SWING MOTOR
GM2	PLUMB SWING MOTOR

6.1.4. ASF-30A



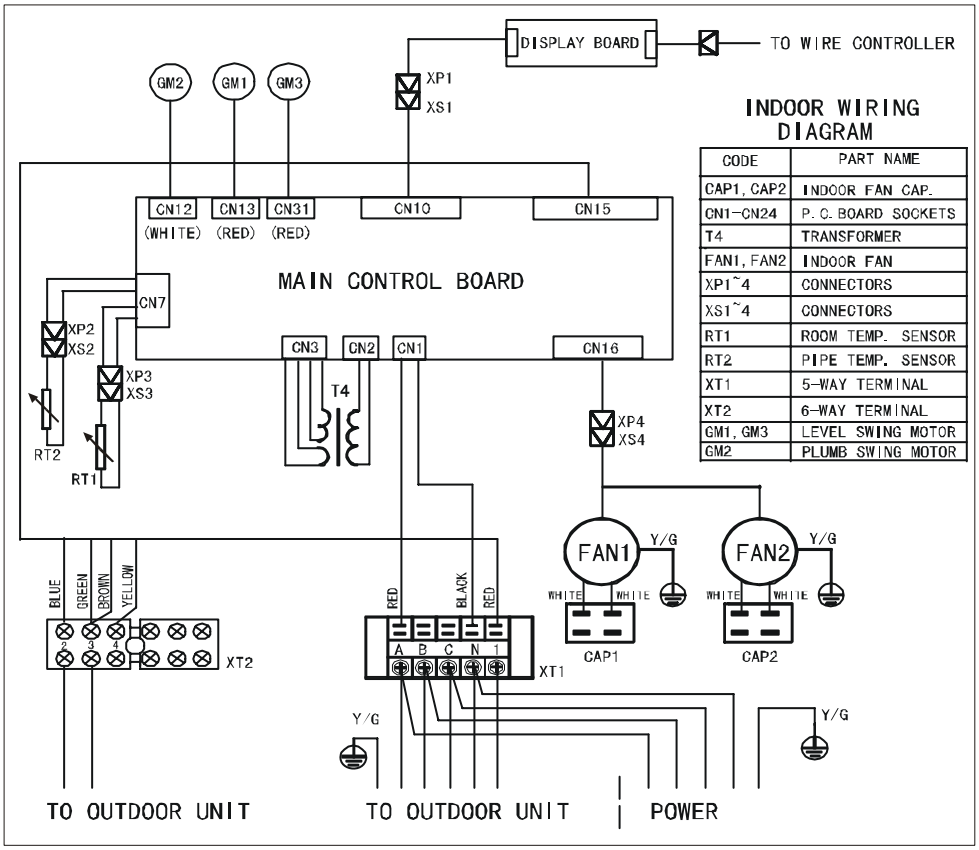
CODE	PART NAME
CAP1	INDOOR FAN CAP.
CN1-CN24	P. C. BOARD SOCKETS
T4	TRANSFORMER
FAN1	INDOOR FAN
XP1~4	CONNECTORS
XS1~4	CONNECTORS
RT1	ROOM TEMP. SENSOR
RT2	PIPE TEMP. SENSOR
XT1	5-WAY TERMINAL
XT2	6-WAY TERMINAL
GM1	LEVEL SWING MOTOR
GM2	PLUMB SWING MOTOR

6.1.5. ASF-36A



CODE	PART NAME
CAP1	INDOOR FAN CAP.
CN1-CN24	P.C.BOARD SOCKETS
T4	TRANSFORMER
FAN1	INDOOR FAN
XP1~3	CONNECTORS
XS1~3	CONNECTORS
RT1	ROOM TEMP. SENSOR
RT2	PIPE TEMP. SENSOR
XT1	5-WAY TERMINAL
XT2	6-WAY TERMINAL
GM1	LEVEL SWING MOTOR
GM2	PLUMB SWING MOTOR

6.1.6. ASF-48A ASF-60A



CODE	PART NAME
CAP1, CAP2	INDOOR FAN CAP.
CN1-CN24	P.C.BOARD SOCKETS
T4	TRANSFORMER
FAN1, FAN2	INDOOR FAN
XP1~4	CONNECTORS
XS1~4	CONNECTORS
RT1	ROOM TEMP. SENSOR
RT2	PIPE TEMP. SENSOR
XT1	5-WAY TERMINAL
XT2	6-WAY TERMINAL
GM1, GM3	LEVEL SWING MOTOR
GM2	PLUMB SWING MOTOR

7. Capacity Tables

Model: ASF-12A

Cooling		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		**21ºC**	**25ºC**	**30ºC**	**35ºC**	**40ºC**	**45ºC**	**50ºC**
21ºC D 15ºC W	Total capacity kW	3.38	3.23	3.12	2.94	2.82	2.73	2.65
	Sensitive capacity kW	2.70	2.59	2.49	2.35	2.26	2.19	2.12
	Input kW.	0.76	0.86	0.97	1.08	1.19	1.30	1.40
24ºC D 17ºC W	Total capacity kW	3.70	3.54	3.41	3.22	3.09	2.99	2.90
	Sensitive capacity kW	2.96	2.83	2.73	2.58	2.47	2.40	2.32
	Input kW.	0.80	0.91	1.03	1.14	1.25	1.37	1.48
27ºC D 19ºC W	Total capacity kW	4.03	3.85	3.71	**3.50**	3.36	3.26	3.15
	Sensitive capacity kW	3.22	3.08	2.97	2.80	2.69	2.60	2.52
	Input kW.	0.84	0.96	1.08	**1.20**	1.32	1.44	1.56
32ºC D 23ºC W	Total capacity kW	4.63	4.43	4.27	4.03	3.86	3.74	3.62
	Sensitive capacity kW	3.70	3.54	3.41	3.22	3.09	2.99	2.90
	Input kW.	0.97	1.10	1.24	1.38	1.52	1.66	1.79

Heating		OUTDOOR CONDITIONS							
Indoor Conditions		**24ºC D 18ºC W**	**12ºC D 11ºC W**	**7ºC D 6ºC W**	**4ºC D 3ºC W**	**0ºC D -1ºC W**	**-5ºC D -6ºC W**	**-7ºC D -8ºC W**	**-15ºC D -16ºC W**
15ºC	Capacity kW	6.56	5.24	4.37	3.93	3.71	3.28	3.06	2.84
	Input kW.	1.95	1.56	1.30	1.23	1.17	1.10	1.04	0.91
18ºC	Capacity kW	6.16	4.92	4.10	3.69	3.49	3.08	2.87	2.67
	Input kW.	1.83	1.46	1.22	1.16	1.10	1.04	0.98	0.85
20ºC	Capacity kW	5.70	4.56	**3.80**	3.42	3.23	2.85	2.66	2.47
	Input kW.	1.70	1.36	**1.13**	1.07	1.02	0.96	0.90	0.79
22ºC	Capacity kW	5.24	4.20	3.50	3.15	2.97	2.62	2.45	2.27
	Input kW.	1.56	1.25	1.04	0.99	0.94	0.88	0.83	0.73
27ºC	Capacity kW	4.56	3.65	3.04	2.74	2.58	2.28	2.13	1.98
	Input kW.	1.36	1.08	0.90	0.86	0.81	0.77	0.72	0.63

Model: ASF-18A

Cooling		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		**21ºC**	**25ºC**	**30ºC**	**35ºC**	**40ºC**	**45ºC**	**50ºC**
21ºC D 15ºC W	Total capacity kW	5.22	4.99	4.81	4.54	4.35	4.22	4.08
	Sensitive capacity kW	4.17	3.99	3.85	3.63	3.48	3.37	3.27
	Input kW.	1.20	1.37	1.54	1.71	1.88	2.05	2.22
24ºC D 17ºC W	Total capacity kW	5.71	5.46	5.27	4.97	4.77	4.62	4.47
	Sensitive capacity kW	4.57	4.37	4.21	3.97	3.82	3.70	3.58
	Input kW.	1.26	1.44	1.62	1.81	1.99	2.17	2.35
27ºC D 19ºC W	Total capacity kW	6.21	5.94	5.72	**5.40**	5.18	5.02	4.86
	Sensitive capacity kW	4.97	4.75	4.58	4.32	4.15	4.02	3.89
	Input kW.	1.33	1.52	1.71	**1.90**	2.09	2.28	2.47
32ºC D 23ºC W	Total capacity kW	7.14	6.83	6.58	6.21	5.96	5.78	5.59
	Sensitive capacity kW	5.71	5.46	5.27	4.97	4.77	4.62	4.47
	Input kW.	1.53	1.75	1.97	2.19	2.40	2.62	2.84

Heating		OUTDOOR CONDITIONS							
Indoor Conditions		**24ºC D 18ºC W**	**12ºC D 11ºC W**	**7ºC D 6ºC W**	**4ºC D 3ºC W**	**0ºC D -1ºC W**	**-5ºC D -6ºC W**	**-7ºC D -8ºC W**	**-15ºC D -16ºC W**
15ºC	Capacity kW	10.35	8.28	6.90	6.21	5.87	5.18	4.83	4.49
	Input kW.	3.19	2.55	2.13	2.02	1.91	1.81	1.70	1.49
18ºC	Capacity kW	9.72	7.78	6.48	5.83	5.51	4.86	4.54	4.21
	Input kW.	3.00	2.40	2.00	1.90	1.80	1.70	1.60	1.40
20ºC	Capacity kW	9.00	7.20	**6.00**	5.40	5.10	4.50	4.20	3.90
	Input kW.	2.78	2.22	**1.85**	1.76	1.67	1.57	1.48	1.30
22ºC	Capacity kW	8.28	6.62	5.52	4.97	4.69	4.14	3.86	3.59
	Input kW.	2.55	2.04	1.70	1.62	1.53	1.45	1.36	1.19
27ºC	Capacity kW	7.20	5.76	4.80	4.32	4.08	3.60	3.36	3.12
	Input kW.	2.22	1.78	1.48	1.41	1.33	1.26	1.18	1.04

Model: ASF-24A

Cooling		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		**21ºC**	**25ºC**	**30ºC**	**35ºC**	**40ºC**	**45ºC**	**50ºC**
21ºC D 15ºC W	Total capacity kW	6.86	6.56	6.32	5.96	5.73	5.55	5.37
	Sensitive capacity kW	5.49	5.25	5.06	4.77	4.58	4.44	4.29
	Input kW.	1.70	1.94	2.19	2.43	2.67	2.92	3.16
24ºC D 17ºC W	Total capacity kW	7.51	7.19	6.92	6.53	6.27	6.07	5.88
	Sensitive capacity kW	6.01	5.75	5.54	5.23	5.02	4.86	4.70
	Input kW.	1.80	2.05	2.31	2.57	2.82	3.08	3.33
27ºC D 19ºC W	Total capacity kW	8.17	7.81	7.53	**7.10**	6.82	6.60	6.39
	Sensitive capacity kW	6.53	6.25	6.02	5.68	5.45	5.28	5.11
	Input kW.	1.89	2.16	2.43	**2.70**	2.97	3.24	3.51
32ºC D 23ºC W	Total capacity kW	9.39	8.98	8.65	8.17	7.84	7.59	7.35
	Sensitive capacity kW	7.51	7.19	6.92	6.53	6.27	6.07	5.88
	Input kW.	2.17	2.48	2.79	3.11	3.42	3.73	4.04

Heating		OUTDOOR CONDITIONS							
Indoor Conditions		**24ºC D 18ºC W**	**12ºC D 11ºC W**	**7ºC D 6ºC W**	**4ºC D 3ºC W**	**0ºC D -1ºC W**	**-5ºC D -6ºC W**	**-7ºC D -8ºC W**	**-15ºC D -16ºC W**
15ºC	Capacity kW	13.80	11.04	9.20	8.28	7.82	6.90	6.44	5.98
	Input kW.	4.83	3.86	3.22	3.06	2.90	2.74	2.58	2.25
18ºC	Capacity kW	12.96	10.37	8.64	7.78	7.34	6.48	6.05	5.62
	Input kW.	4.54	3.63	3.02	2.87	2.72	2.57	2.42	2.12
20ºC	Capacity kW	12.00	9.60	**8.00**	7.20	6.80	6.00	5.60	5.20
	Input kW.	4.20	3.36	**2.80**	2.66	2.52	2.38	2.24	1.96
22ºC	Capacity kW	11.04	8.83	7.36	6.62	6.26	5.52	5.15	4.78
	Input kW.	3.86	3.09	2.58	2.45	2.32	2.19	2.06	1.80
27ºC	Capacity kW	9.60	7.68	6.40	5.76	5.44	4.80	4.48	4.16
	Input kW.	3.36	2.69	2.24	2.13	2.02	1.90	1.79	1.57

Model: ASF-30A

Cooling		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		**21ºC**	**25ºC**	**30ºC**	**35ºC**	**40ºC**	**45ºC**	**50ºC**
21ºC D 15ºC W	Total capacity kW	8.89	8.50	8.19	7.73	7.42	7.19	6.96
	Sensitive capacity kW	7.11	6.80	6.55	6.18	5.94	5.75	5.56
	Input kW.	2.36	2.70	3.04	3.38	3.71	4.05	4.39
24ºC D 17ºC W	Total capacity kW	9.73	9.31	8.97	8.46	8.13	7.87	7.62
	Sensitive capacity kW	7.79	7.45	7.18	6.77	6.50	6.30	6.09
	Input kW.	2.49	2.85	3.21	3.56	3.92	4.28	4.63
27ºC D 19ºC W	Total capacity kW	10.58	10.12	9.75	**9.20**	8.83	8.56	8.28
	Sensitive capacity kW	8.46	8.10	7.80	7.36	7.07	6.84	6.62
	Input kW.	2.63	3.00	3.38	**3.75**	4.13	4.50	4.88
32ºC D 23ºC W	Total capacity kW	12.17	11.64	11.21	10.58	10.16	9.84	9.52
	Sensitive capacity kW	9.73	9.31	8.97	8.46	8.13	7.87	7.62
	Input kW.	3.02	3.45	3.88	4.31	4.74	5.18	5.61

Indoor Conditions		**24ºC D 18ºC W**	**12ºC D 11ºC W**	**7ºC D 6ºC W**	**4ºC D 3ºC W**	**0ºC D -1ºC W**	**-5ºC D -6ºC W**	**-7ºC D -8ºC W**	**-15ºC D -16ºC W**
15ºC	Capacity kW	16.22	12.97	10.81	9.73	9.19	8.11	7.57	7.03
	Input kW.	6.04	4.83	4.03	3.82	3.62	3.42	3.22	2.82
18ºC	Capacity kW	15.23	12.18	10.15	9.14	8.63	7.61	7.11	6.60
	Input kW.	5.67	4.54	3.78	3.59	3.40	3.21	3.02	2.65
20ºC	Capacity kW	14.10	11.28	**9.40**	8.46	7.99	7.05	6.58	6.11
	Input kW.	5.25	4.20	**3.50**	3.33	3.15	2.98	2.80	2.45
22ºC	Capacity kW	12.97	10.38	8.65	7.78	7.35	6.49	6.05	5.62
	Input kW.	4.83	3.86	3.22	3.06	2.90	2.74	2.58	2.25
27ºC	Capacity kW	11.28	9.02	7.52	6.77	6.39	5.64	5.26	4.89
	Input kW.	4.20	3.36	2.80	2.66	2.52	2.38	2.24	1.96

Model: ASF-36A

Cooling		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		**21ºC**	**25ºC**	**30ºC**	**35ºC**	**40ºC**	**45ºC**	**50ºC**
21ºC D 15ºC W	Total capacity kW	10.14	9.70	9.35	8.82	8.47	8.20	7.94
	Sensitive capacity kW	8.11	7.76	7.48	7.06	6.77	6.56	6.35
	Input kW.	2.36	2.70	3.04	3.38	3.71	4.05	4.39
24ºC D 17ºC W	Total capacity kW	11.11	10.63	10.24	9.66	9.27	8.98	8.69
	Sensitive capacity kW	8.89	8.50	8.19	7.73	7.42	7.19	6.96
	Input kW.	2.49	2.85	3.21	3.56	3.92	4.28	4.63
27ºC D 19ºC W	Total capacity kW	12.08	11.55	11.13	**10.50**	10.08	9.77	9.45
	Sensitive capacity kW	9.66	9.24	8.90	8.40	8.06	7.81	7.56
	Input kW.	2.63	3.00	3.38	**3.75**	4.13	4.50	4.88
32ºC D 23ºC W	Total capacity kW	13.89	13.28	12.80	12.08	11.59	11.23	10.87
	Sensitive capacity kW	11.11	10.63	10.24	9.66	9.27	8.98	8.69
	Input kW.	3.02	3.45	3.88	4.31	4.74	5.18	5.61

Heating		OUTDOOR CONDITIONS							
Indoor Conditions		**24ºC D 18ºC W**	**12ºC D 11ºC W**	**7ºC D 6ºC W**	**4ºC D 3ºC W**	**0ºC D -1ºC W**	**-5ºC D -6ºC W**	**-7ºC D -8ºC W**	**-15ºC D -16ºC W**
15ºC	Capacity kW	19.67	15.73	13.11	11.80	11.14	9.83	9.18	8.52
	Input kW.	6.38	5.11	4.26	4.04	3.83	3.62	3.40	2.98
18ºC	Capacity kW	18.47	14.77	12.31	11.08	10.47	9.23	8.62	8.00
	Input kW.	5.99	4.80	4.00	3.80	3.60	3.40	3.20	2.80
20ºC	Capacity kW	17.10	13.68	**11.40**	10.26	9.69	8.55	7.98	7.41
	Input kW.	5.55	4.44	**3.70**	3.52	3.33	3.15	2.96	2.59
22ºC	Capacity kW	15.73	12.59	10.49	9.44	8.91	7.87	7.34	6.82
	Input kW.	5.11	4.08	3.40	3.23	3.06	2.89	2.72	2.38
27ºC	Capacity kW	13.68	10.94	9.12	8.21	7.75	6.84	6.38	5.93
	Input kW.	4.44	3.55	2.96	2.81	2.66	2.52	2.37	2.07

Model: ASF-48A

Cooling		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		**21ºC**	**25ºC**	**30ºC**	**35ºC**	**40ºC**	**45ºC**	**50ºC**
21ºC D 15ºC W	Total capacity kW	13.52	12.94	12.47	11.76	11.29	10.94	10.58
	Sensitive capacity kW	10.82	10.35	9.97	9.41	9.03	8.75	8.47
	Input kW.	2.96	3.38	3.81	4.23	4.65	5.08	5.50
24ºC D 17ºC W	Total capacity kW	14.81	14.17	13.65	12.88	12.36	11.98	11.59
	Sensitive capacity kW	11.85	11.33	10.92	10.30	9.89	9.58	9.27
	Input kW.	3.13	3.57	4.02	4.47	4.91	5.36	5.80
27ºC D 19ºC W	Total capacity kW	16.10	15.40	14.84	**14.00**	13.44	13.02	12.60
	Sensitive capacity kW	12.88	12.32	11.87	11.20	10.75	10.42	10.08
	Input kW.	3.29	3.76	4.23	**4.70**	5.17	5.64	6.11
32ºC D 23ºC W	Total capacity kW	18.52	17.71	17.07	16.10	15.46	14.97	14.49
	Sensitive capacity kW	14.81	14.17	13.65	12.88	12.36	11.98	11.59
	Input kW.	3.78	4.32	4.86	5.41	5.95	6.49	7.03

Heating		OUTDOOR CONDITIONS							
Indoor Conditions		**24ºC D 18ºC W**	**12ºC D 11ºC W**	**7ºC D 6ºC W**	**4ºC D 3ºC W**	**0ºC D -1ºC W**	**-5ºC D -6ºC W**	**-7ºC D -8ºC W**	**-15ºC D -16ºC W**
15ºC	Capacity kW	26.22	20.98	17.48	15.73	14.86	13.11	12.24	11.36
	Input kW.	8.45	6.76	5.64	5.35	5.07	4.79	4.51	3.94
18ºC	Capacity kW	24.62	19.70	16.42	14.77	13.95	12.31	11.49	10.67
	Input kW.	7.94	6.35	5.29	5.03	4.76	4.50	4.23	3.70
20ºC	Capacity kW	22.80	18.24	**15.20**	13.68	12.92	11.40	10.64	9.88
	Input kW.	7.35	5.88	**4.90**	4.66	4.41	4.17	3.92	3.43
22ºC	Capacity kW	20.98	16.78	13.98	12.59	11.89	10.49	9.79	9.09
	Input kW.	6.76	5.41	4.51	4.28	4.06	3.83	3.61	3.16
27ºC	Capacity kW	18.24	14.59	12.16	10.94	10.34	9.12	8.51	7.90
	Input kW.	5.88	4.70	3.92	3.72	3.53	3.33	3.14	2.74

Model: ASF-60A

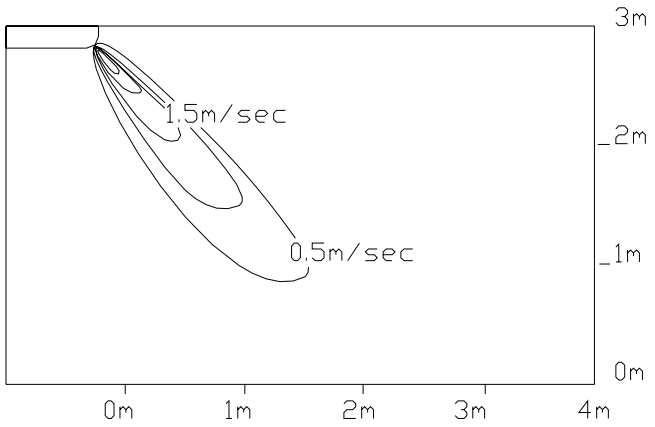
Cooling		OUTDOOR TEMPERATURE DRY						
Indoor Conditions		**21ºC**	**25ºC**	**30ºC**	**35ºC**	**40ºC**	**45ºC**	**50ºC**
21ºC D 15ºC W	Total capacity kW	16.42	15.71	15.14	14.28	13.71	13.28	12.85
	Sensitive capacity kW	13.14	12.57	12.11	11.42	10.97	10.62	10.28
	Input kW.	3.78	4.32	4.86	5.40	5.94	6.48	7.02
24ºC D 17ºC W	Total capacity kW	17.99	17.20	16.58	15.64	15.01	14.55	14.08
	Sensitive capacity kW	14.39	13.76	13.26	12.51	12.01	11.64	11.26
	Input kW.	3.99	4.56	5.13	5.70	6.27	6.84	7.41
27ºC D 19ºC W	Total capacity kW	19.55	18.70	18.02	**17.00**	16.32	15.81	15.30
	Sensitive capacity kW	15.64	14.96	14.42	13.60	13.06	12.65	12.24
	Input kW.	4.20	4.80	5.40	**6.00**	6.60	7.20	7.80
32ºC D 23ºC W	Total capacity kW	22.48	21.51	20.72	19.55	18.77	18.18	17.60
	Sensitive capacity kW	17.99	17.20	16.58	15.64	15.01	14.55	14.08
	Input kW.	4.83	5.52	6.21	6.90	7.59	8.28	8.97

Indoor Conditions		**24ºC D 18ºC W**	**12ºC D 11ºC W**	**7ºC D 6ºC W**	**4ºC D 3ºC W**	**0ºC D -1ºC W**	**-5ºC D -6ºC W**	**-7ºC D -8ºC W**	**-15ºC D -16ºC W**
15ºC	Capacity kW	34.50	27.60	23.00	20.70	19.55	17.25	16.10	14.95
	Input kW.	10.35	8.28	6.90	6.56	6.21	5.87	5.52	4.83
18ºC	Capacity kW	32.40	25.92	21.60	19.44	18.36	16.20	15.12	14.04
	Input kW.	9.72	7.78	6.48	6.16	5.83	5.51	5.18	4.54
20ºC	Capacity kW	30.00	24.00	**20.00**	18.00	17.00	15.00	14.00	13.00
	Input kW.	9.00	7.20	**6.00**	5.70	5.40	5.10	4.80	4.20
22ºC	Capacity kW	27.60	22.08	18.40	16.56	15.64	13.80	12.88	11.96
	Input kW.	8.28	6.62	5.52	5.24	4.97	4.69	4.42	3.86
27ºC	Capacity kW	24.00	19.20	16.00	14.40	13.60	12.00	11.20	10.40
	Input kW.	7.20	5.76	4.80	4.56	4.32	4.08	3.84	3.36

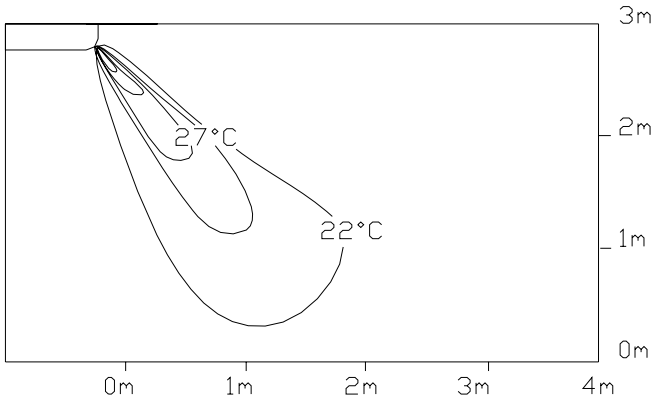
8. Air Velocity and Temperature Distributions

Discharge angle 60° (CEILING)

Airflow velocity

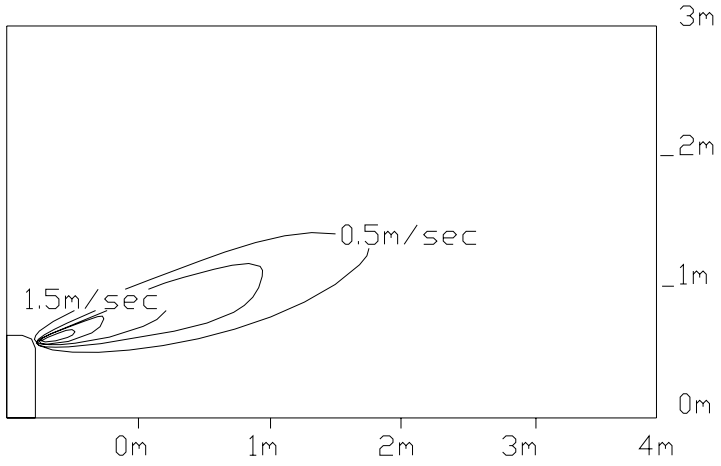


Temperature

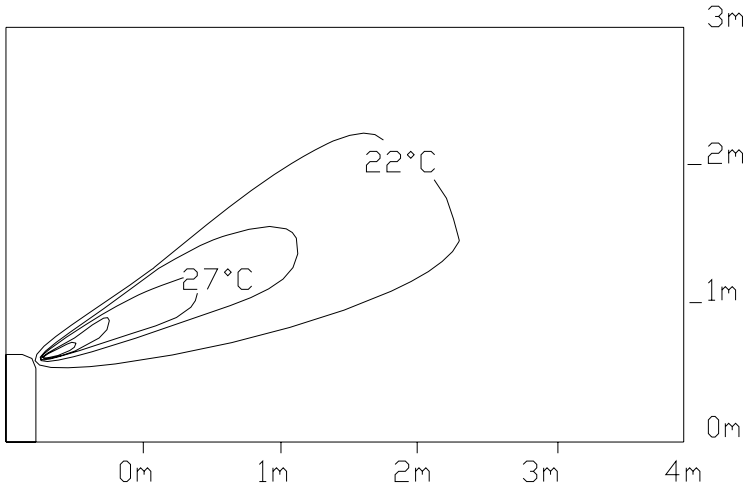


Discharge angle 60°(FLOOR)

Airflow velocity



Temperature



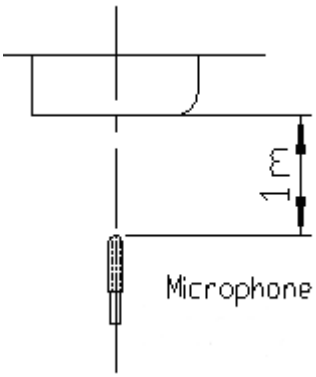
9. Electric Characteristics

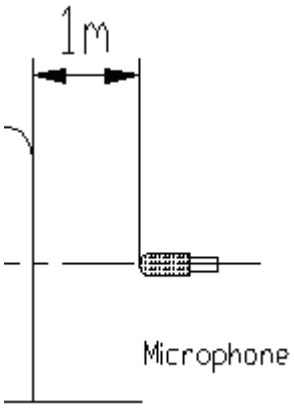
Model	Power supply		Indoor fan motor	
	Hz	Voltage	Power output	FLA
ASF-12A	50	220~240	25	0.13
ASF-18A	50	220~240	55	0.355
ASF-24A	50	220~240	55	0.355
ASF-30A	50	220~240	80	0.475
ASF-36A	50	380	80	0.475
ASF-48A	50	380	59	0.34
ASF-60A	50	380	59	0.34

Symbols:

FLA: Full Load Amps.

10. Sound Levels



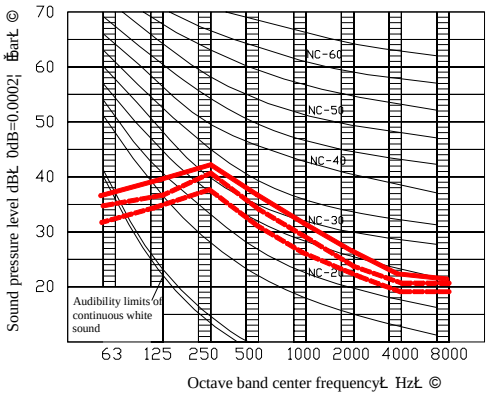


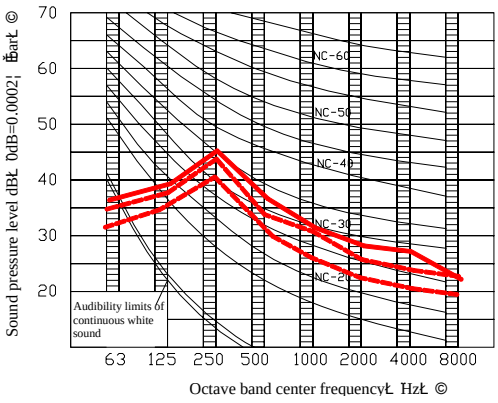
Ceiling

Floor

	High airflow
	Low airflow

12000 BTU/h 18000 BTU/h

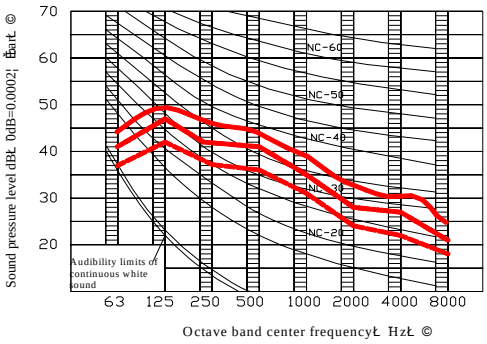




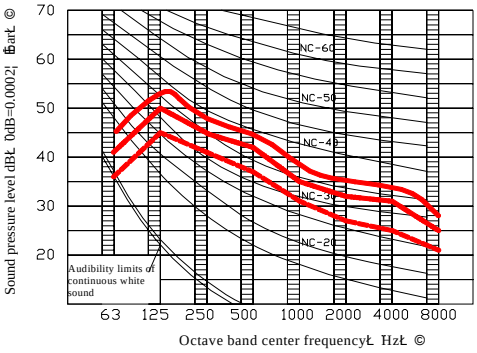
Ceiling

Floor

24000 BTU/h 30000 BTU/h 36000 BTU/h

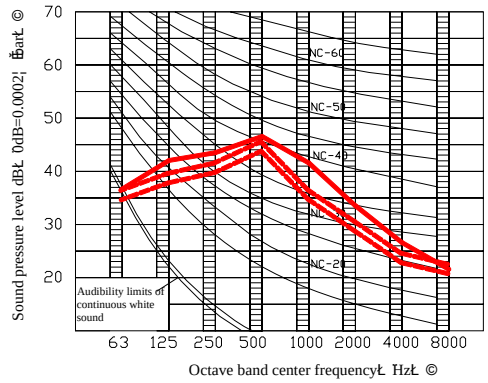


Ceiling

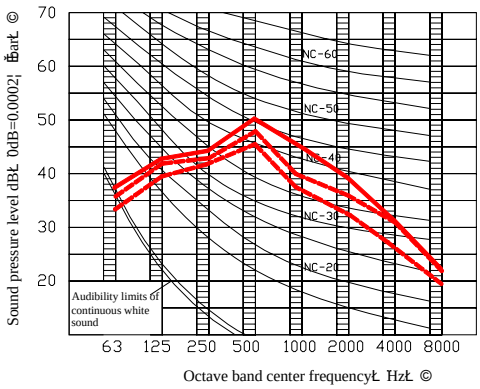


Floor

48000 BTU/h 60000 BTU/h



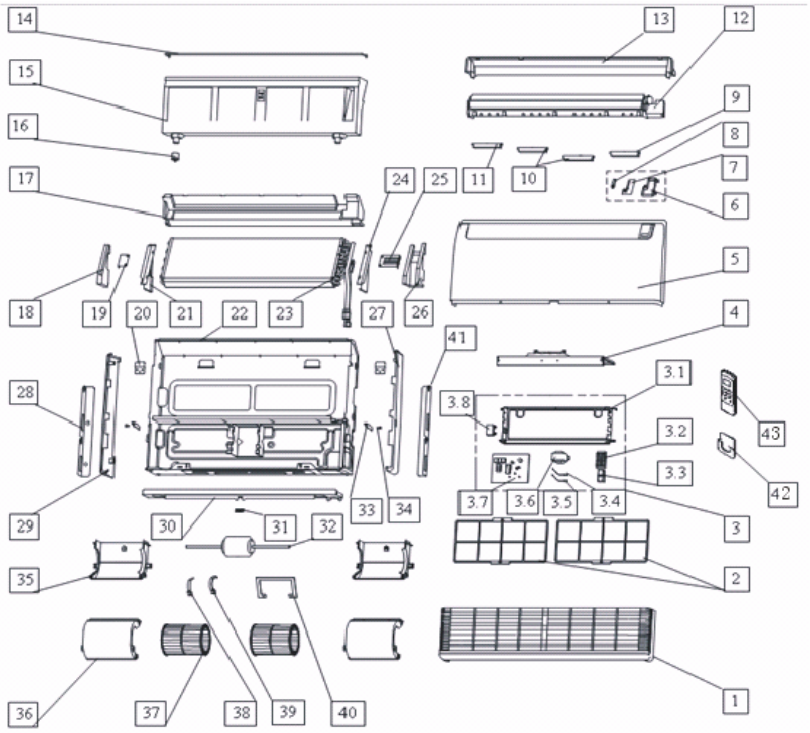
Ceiling



Floor

11. Exploded view

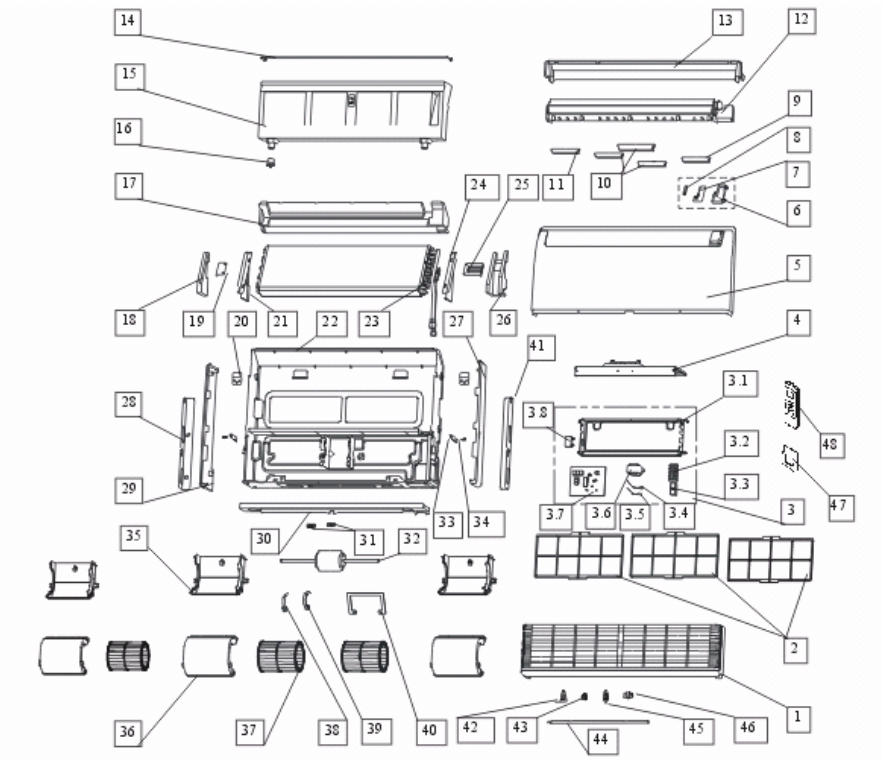
11.1 ASF-12A ASF-18A ASF-24A



No.	Part Name	Quantity	No.	Part Name	Quantity
1	Air inlet grille	1	20	Installation clamp	2
2	filter	2	21	Right holder,eva	1
3	Electric control assy	1	22	Base pan	1
3.1	Electric part box	1	23	Evaporator	1
3.2	Wire joint	1	23.1	Electric expansive valve	1
3.3	Wire joint□ROHS□	1	23.2	Electric Expansion loop	1
3.4	Pipe Temperature Sensor Ass'y II	1	24	left holder, eva	1
3.5	Pipe Temperature Sensor Ass'y	1	25	left fixed board, eva	1
3.6	Transformer	1	26	left frame holder, eva	1
3.7	Main control PCB	1	27	left clapboard	1
3.8	Fan motor capacitor	1	28	right installation board	1
4	Cover for E-box	1	29	right clapboard	1
5	Panel Ass'y	1	30	middle beam	1
6	Display panel box	1	31	grille lock	1
7	Display PCB assy	1	32	fan motor	1
8	Manual button	1	33	grille strip	2
9	Sealing foam I for air out frame	1	34	grille strip screw	2
10	Sealing foam II for air out frame	2	35	Sroll-shell, down	2
11	Sealing foam III for air out frame	1	36	Sroll-shell, up	2

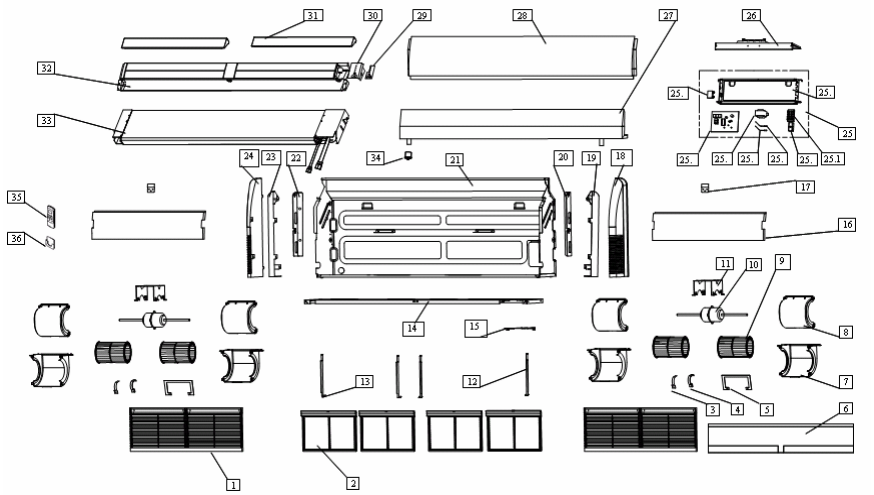
12	Air-out frame assy	1	37	fan	2
13	Back clapboard	1	38	left fixing clamp for motor	1
14	wiry holder for water collector	1	39	right fixing clamp for motor	1
15	Collect water pan assy	1	40	Strenghten board for motor	1
16	plastic cover	1	41	left installation board	1
17	base pan frame assy	1	42	holder	1
18	Right frame holder, eva	1	43	Remote Controller	1
19	Right fixed board, eva	1			

11.2 ASF-30A ASF-36A



No.	Part Name	Quantity	No.	Part Name	Quantity
1	Air inlet grille	1	21	Right holder,eva	1
2	filter	3	22	Base pan	1
3	E-Parts box ass'y	1	23	Evaporator	1
3.1	Electric part box	1	24	left holder, eva	1
3.2	Wire joint	1	25	left fixed board, eva	1
3.3	Wire joint	1	26	left frame holder, eva	1
3.4	Pipe temp. sensor ass'y	1	27	left clapboard	1
3.5	Room temp. sensor ass'y	1	28	right installation board	1
3.6	Transformer	1	29	right clapboard	1
3.7	Main control PCB	1	30	middle beam	1
3.8	Fan motor capacitor	1	31	grille lock	2
4	Cover for E-box	1	32	fan motor	1
5	Panel ass'y	1	33	grille strip	2
6	Display panel box	1	34	grille strip screw	2
7	Display board ass'y	1	35	Sroll-shell, down	3
8	Manual button	1	36	Sroll-shell, up	3
9	Sealing foam I for air out frame	1	37	fan	3
10	Sealing foam II for air out frame	3	38	left fixing clamp for motor	1
11	Sealing foam III for air out frame	1	39	right fixing clamp for motor	1
12	Air-out frame assy	1	40	Strenghten board for motor	1
13	Back clapboard	1	41	left installation board	1
14	wiry holder for water collector	1	42	Supporting board for bearing	1
15	Collect water pan assy	1	43	bearing underlay	1
16	plastic cover	1	44	Axis	1
17	base pan frame assy	1	45	Fixing board for bearing	1
18	Right frame holder, eva	1	46	Coupling	1
19	Right fixed board, eva	1	47	holder	1
20	Installation clamp	2	48	Remote Controller	1

11.3 ASF-48A ASF-60A



No.	Part Name	Quantity	No.	Part Name	Quantity
1	Air inlet grille	2	23	left sealing board	1
2	filter	4	24	left clapboard	1
3	left fixing clamp for motor	2	25	E-Parts box ass'y	1
4	right fixing clamp for motor	2	25.1	Wire joint	1
5	Strenghten board for motor	2	25.2	Wire joint	1
6	E-part box underlay	1	25.3	Pipe temp. sensor ass'y	1
7	Sroll-shell, down	4	25.4	Room temp. sensor ass'y	1
8	Sroll-shell, up	4	25.5	Transformer	1
9	fan	2	25.6	Main control PCB	1
10	fan motor	2	25.7	Fan motor capacitor	2
11	fan motor holder	2	25.8	Electric part box	1
12	right holder, filter	2	26	Cover for E-box	1
13	left holder, filter	2	27	Collect water pan ass'y	1
14	middle beam	1	28	cover	1
15	pipe fixed board	1	29	Display board ass'y	1
16	Sealing foam for collect pan	2	30	Display panel box	1
17	Installation clamp	2	31	Sealing foam I for air out frame	2
18	right clapboard	1	32	Air-out frame assy	1
19	right sealing board	1	33	Evaporator	1
20	right installation board	1	34	plastic cover	1
21	Base pan ass'y	1	35	holder	1
22	left installation board	1	36	Remote Controller	1

Part 3
Outdoor Units

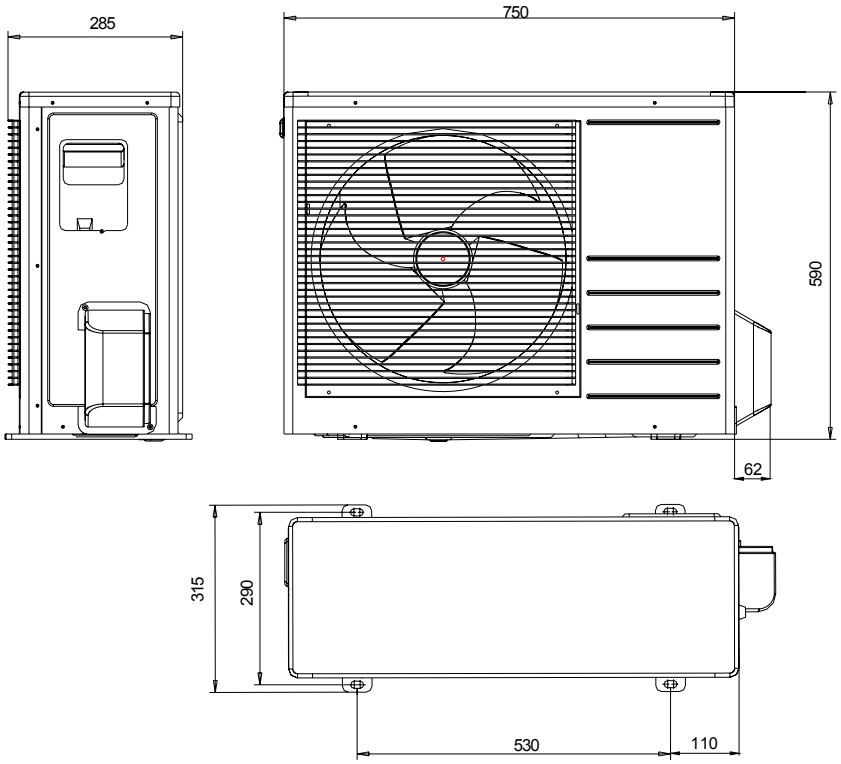
Outdoor Units……..37

Outdoor Units

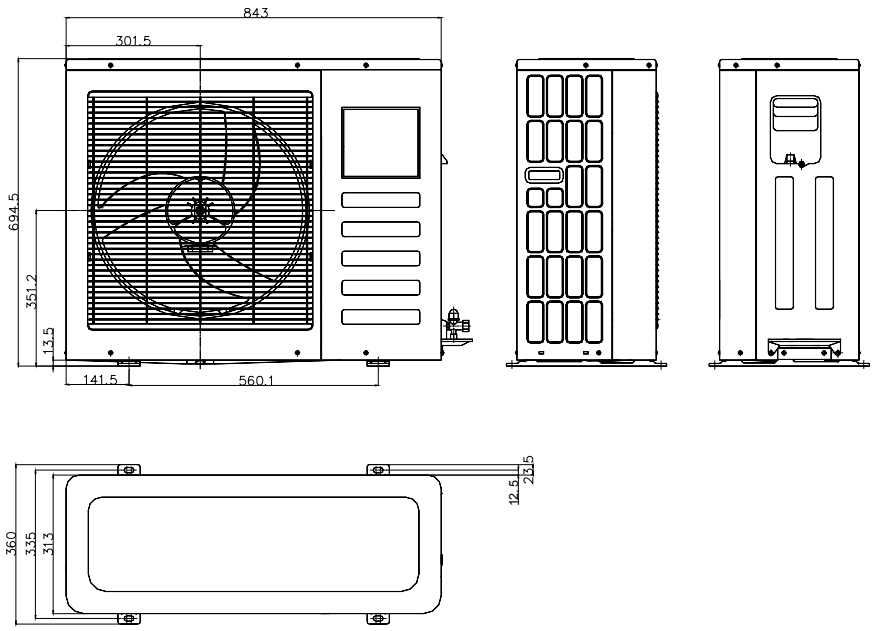
1. Dimensions……..38
2. Service Space……..41
3. Wiring Diagrams……42
4. Field Wiring……..45
5. Electric Characteristics……46
6. Operation Limits……46
7. Sound Levels……..47
8. Exploded view……49
9. Troubleshooting……56

1. Dimensions

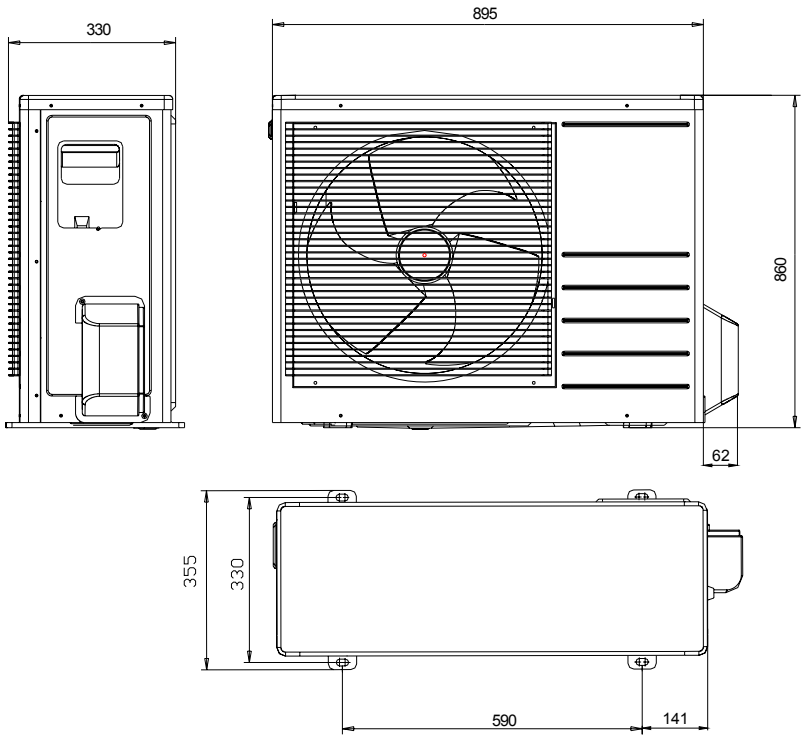
1.1 ASF-12A



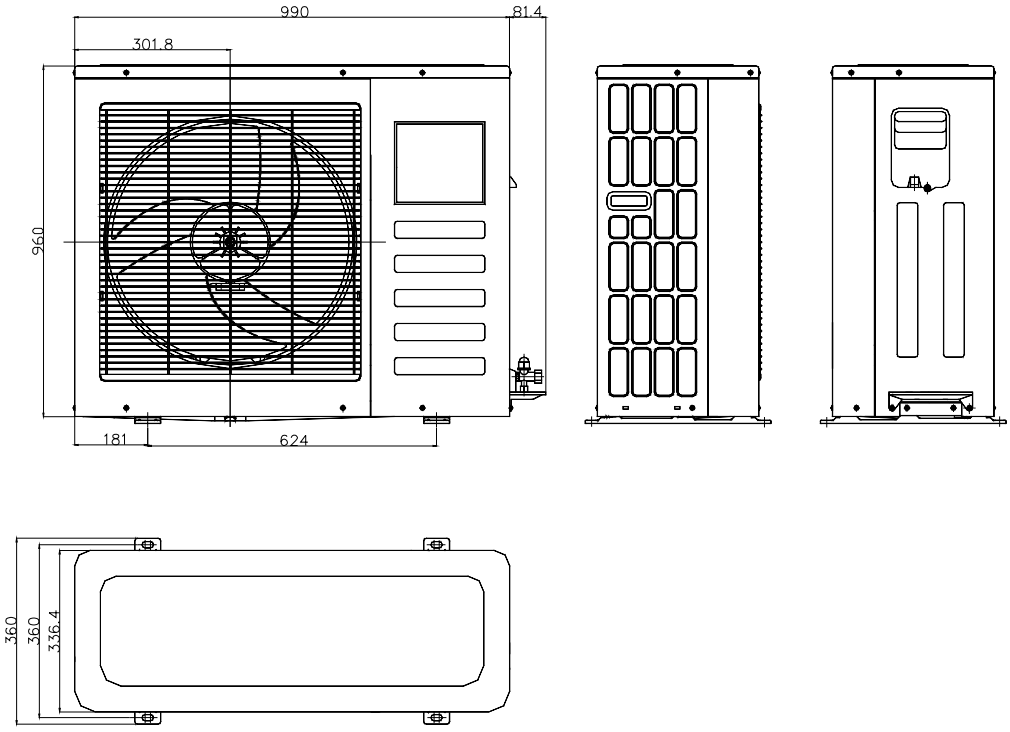
1.2. ASF-18A



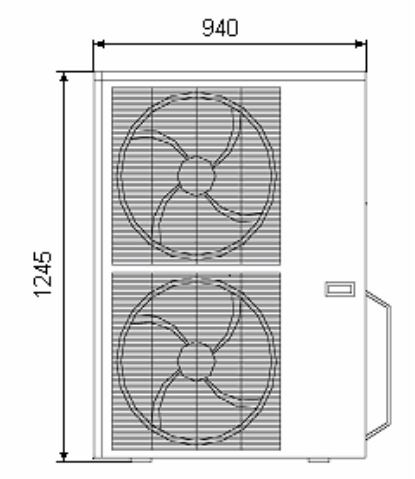
1.3. ASF-24A

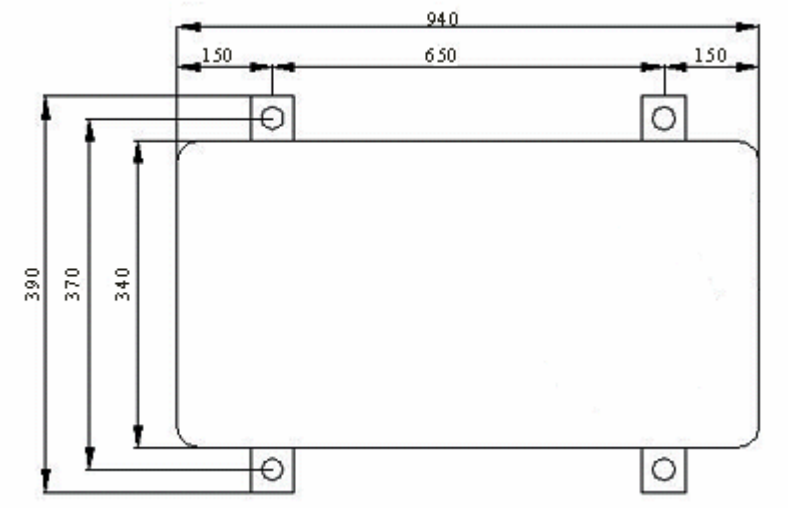


1.4. ASF-30A ASF-36A



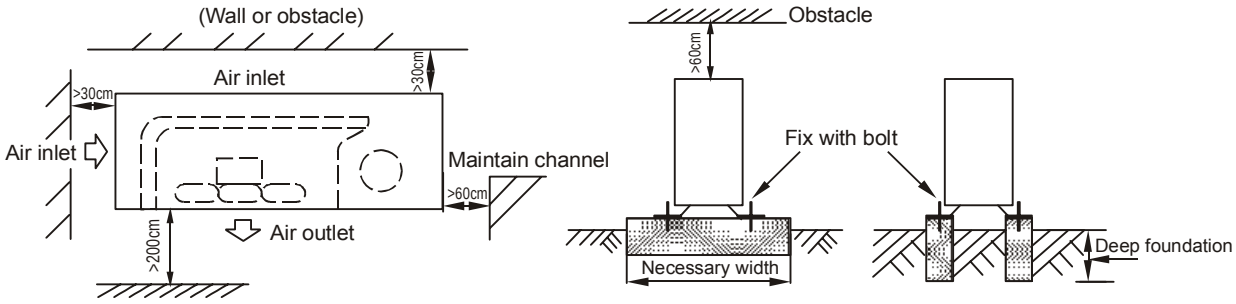
1.5. ASF-48A ASF-60A

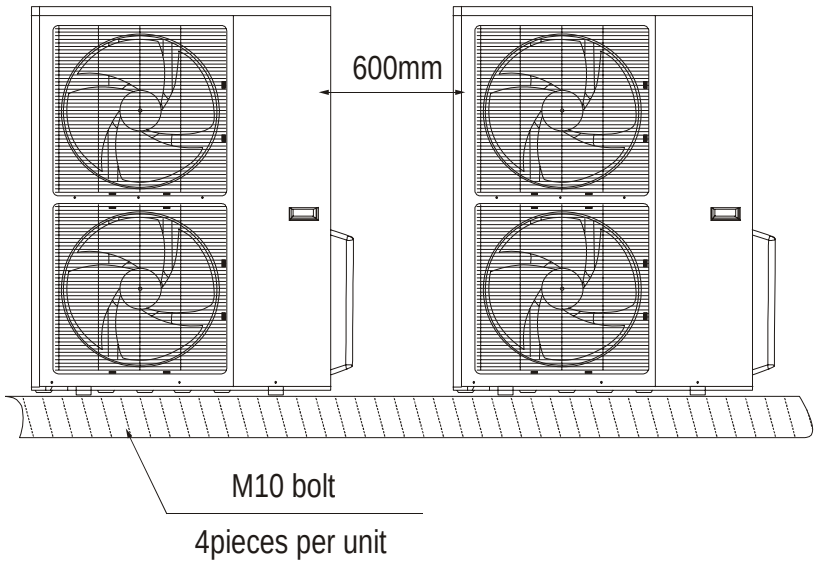




2. Service Space

Capacity ≤ 60000 Btu/h

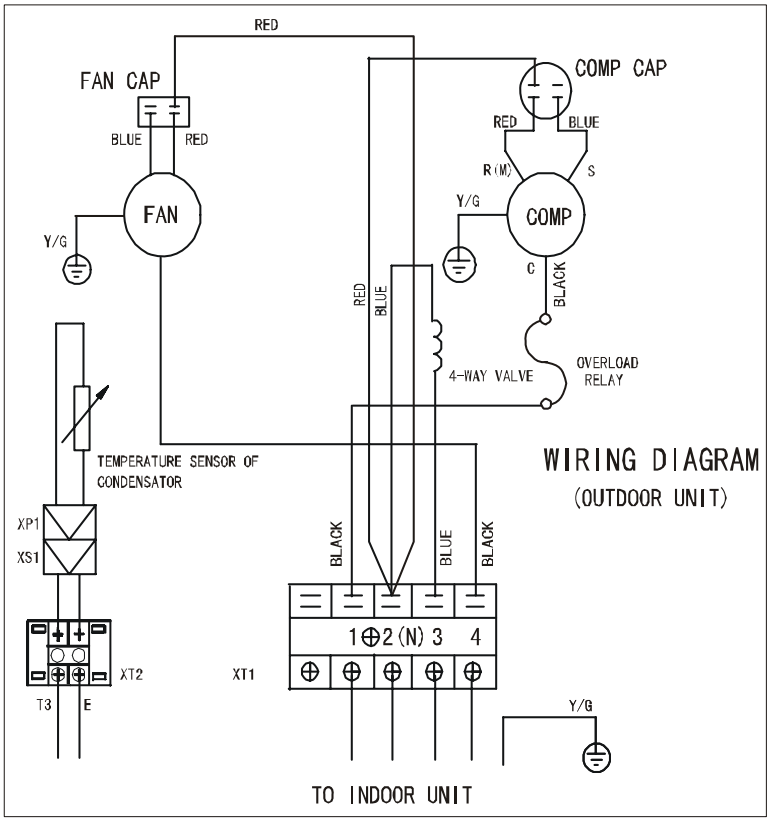




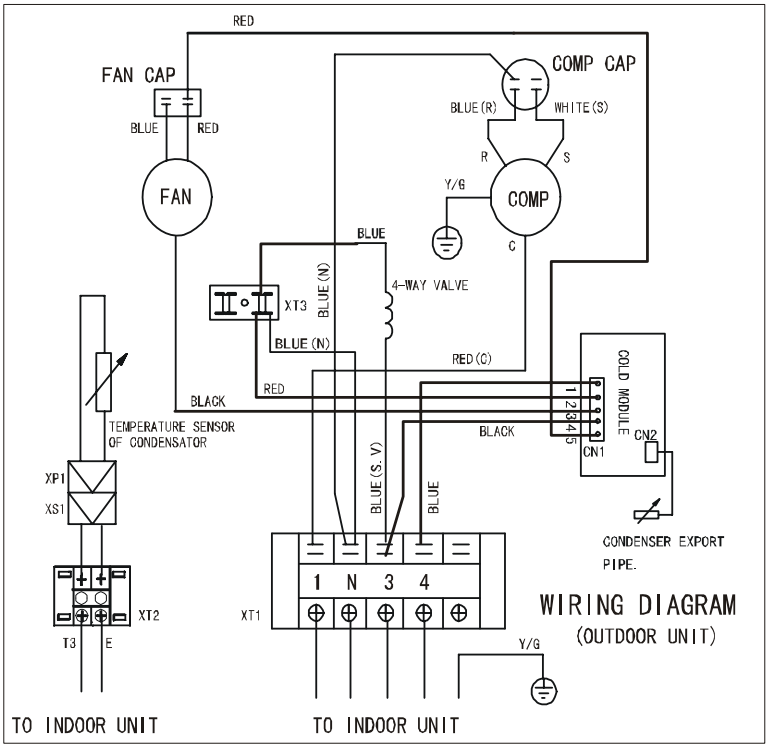
3. Wiring diagrams

3.1 Cooling & Heating

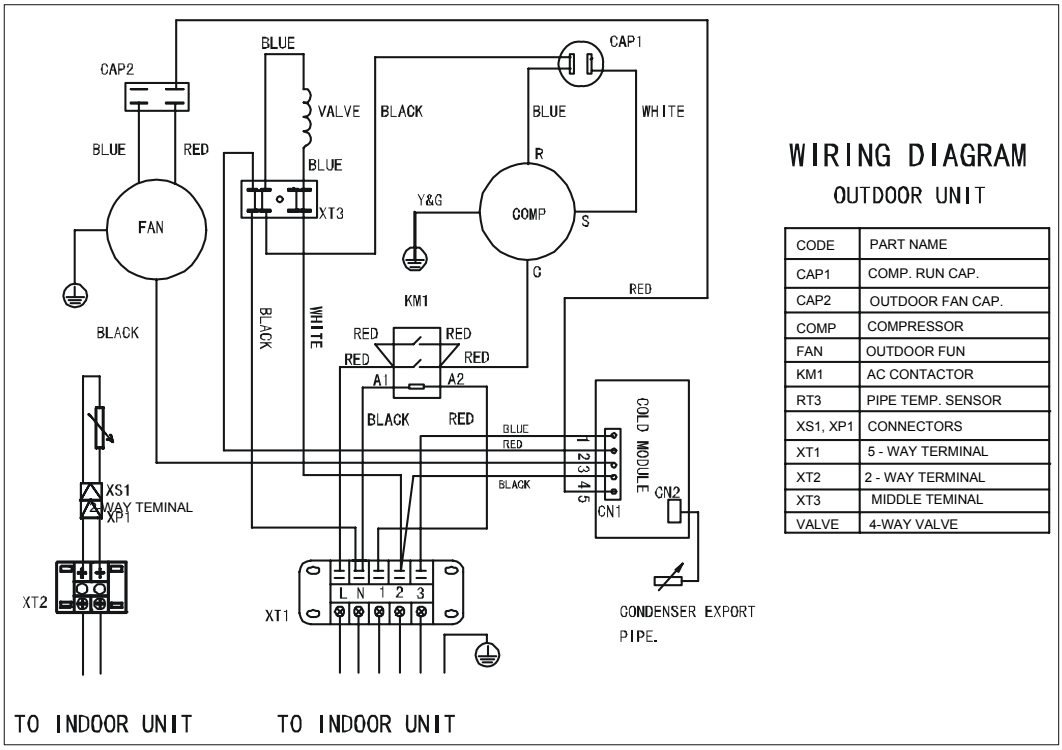
3.1.1. ASF-12A



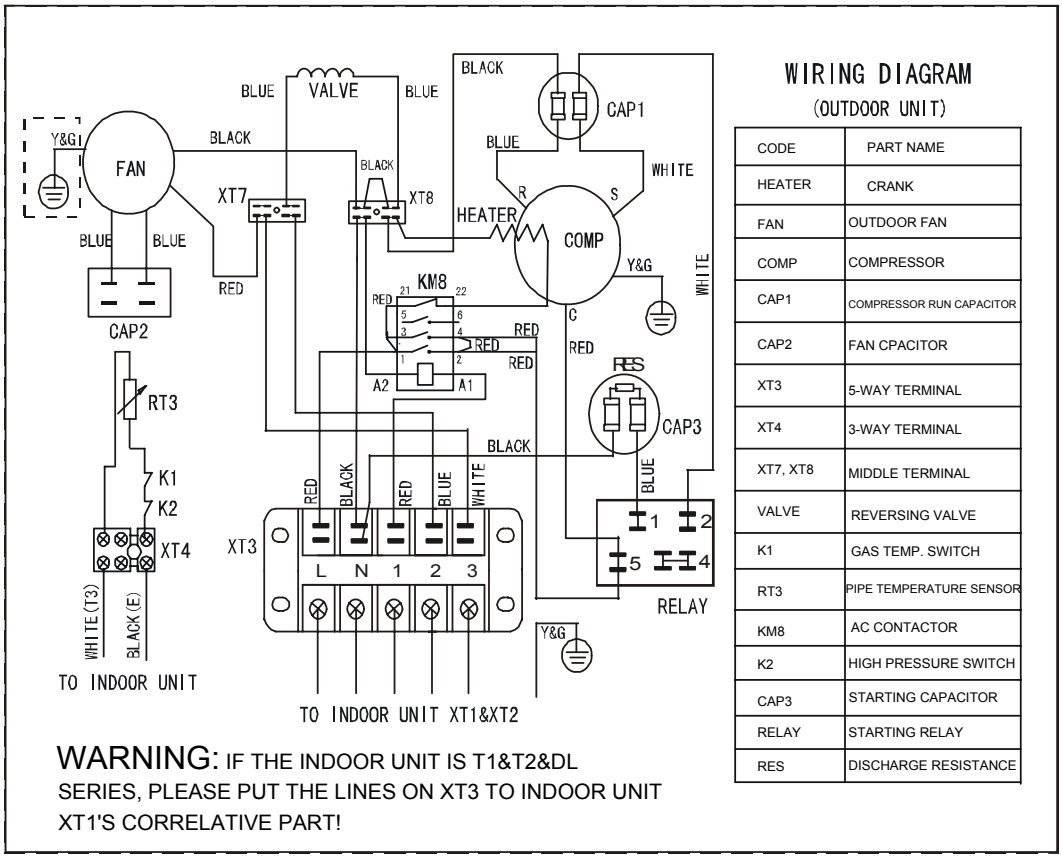
3.1.2. ASF-18A



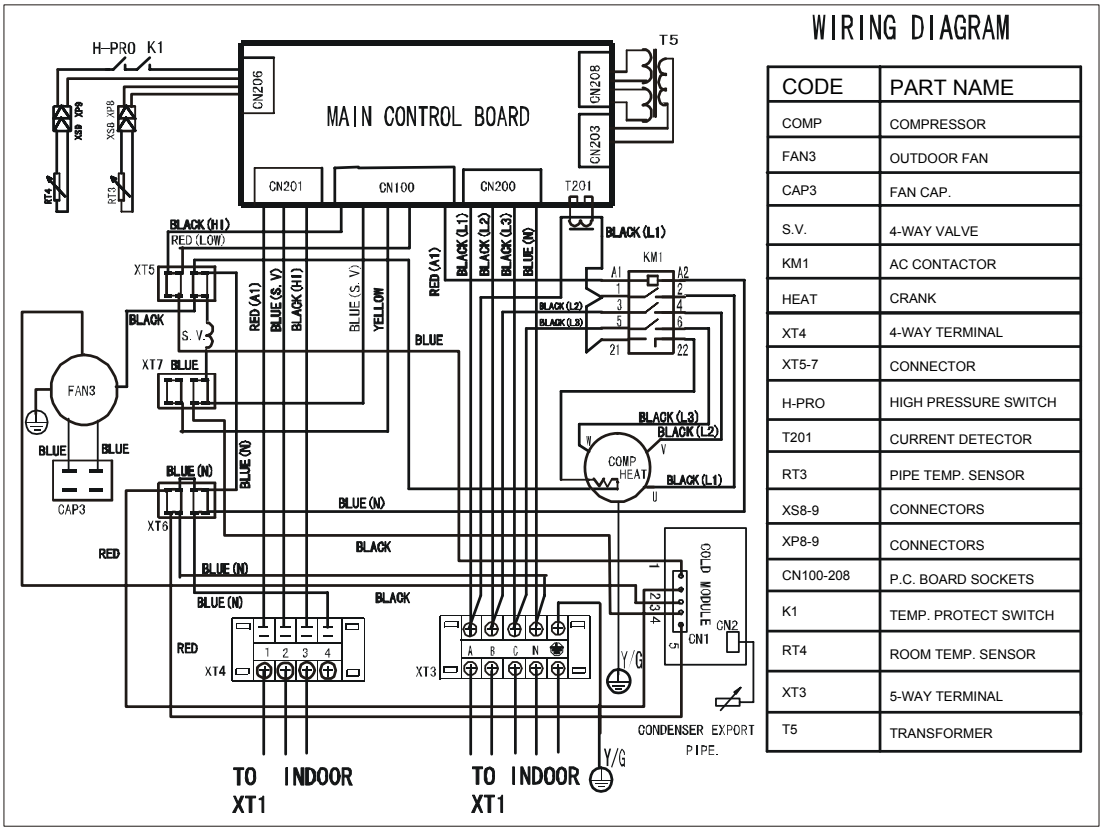
3.1.3. ASF-24A



3.1.4. ASF-30A

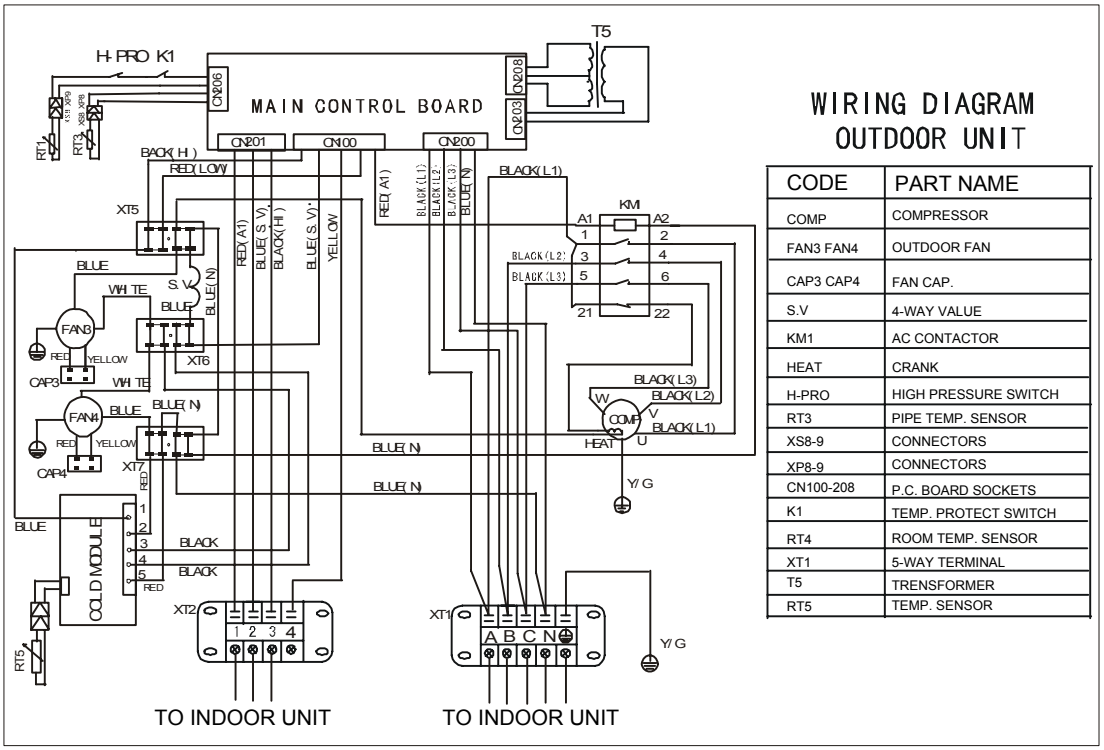


3.1.5. ASF-36A



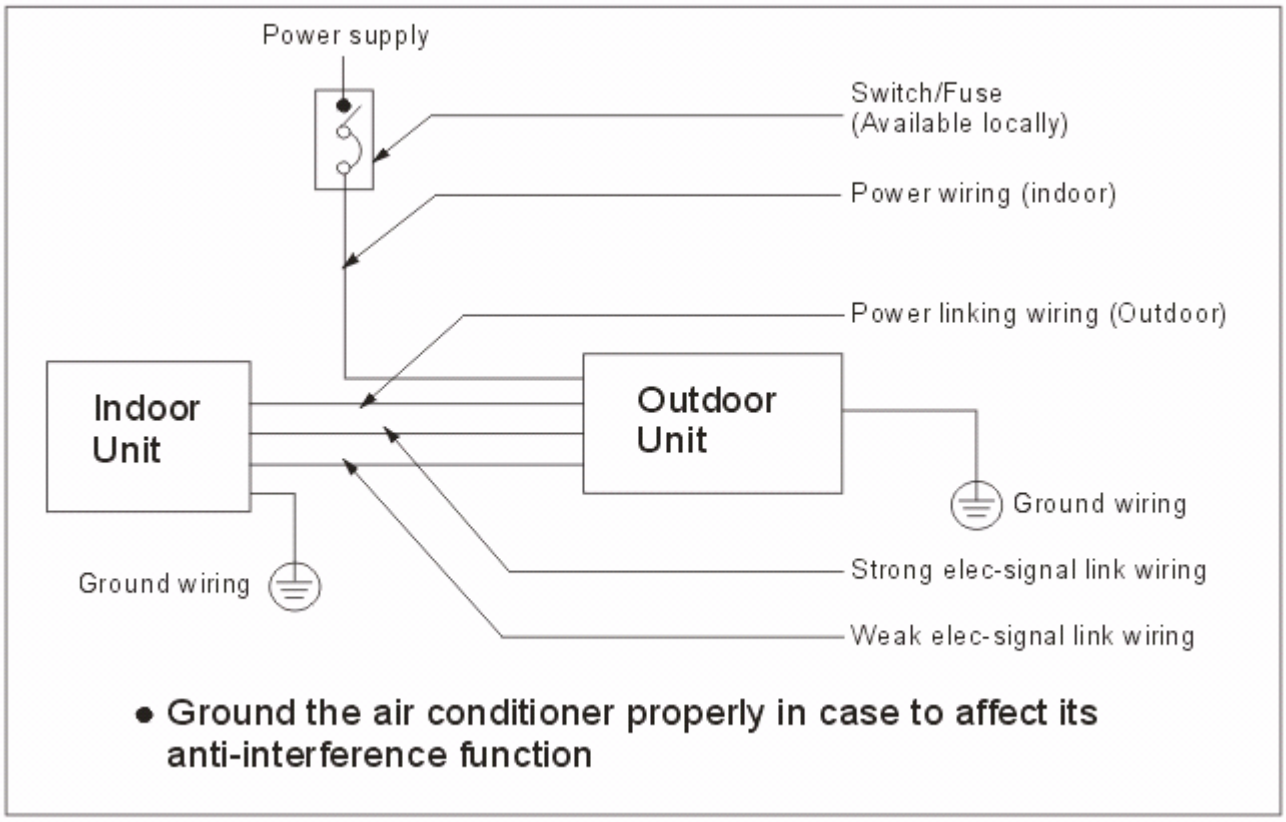
CODE	PART NAME
COMP	COMPRESSOR
FAN3	OUTDOOR FAN
CAP3	FAN CAP.
S.V.	4-WAY VALVE
KM1	AC CONTACTOR
HEAT	CRANK
XT4	4-WAY TERMINAL
XT5-7	CONNECTOR
H-PRO	HIGH PRESSURE SWITCH
T201	CURRENT DETECTOR
RT3	PIPE TEMP. SENSOR
XS8-9	CONNECTORS
XP8-9	CONNECTORS
CN100-208	P.C. BOARD SOCKETS
K1	TEMP. PROTECT SWITCH
RT4	ROOM TEMP. SENSOR
XT3	5-WAY TERMINAL
T5	TRANSFORMER

3.1.6. ASF-48A



CODE	PART NAME
COMP	COMPRESSOR
FAN3 FAN4	OUTDOOR FAN
CAP3 CAP4	FAN CAP.
S.V	4-WAY VALUE
KM1	AC CONTACTOR
HEAT	CRANK
H-PRO	HIGH PRESSURE SWITCH
RT3	PIPE TEMP. SENSOR
XS8-9	CONNECTORS
XP8-9	CONNECTORS
CN100-208	P.C. BOARD SOCKETS
K1	TEMP. PROTECT SWITCH
RT4	ROOM TEMP. SENSOR
XT1	5-WAY TERMINAL
T5	TRENSFORMER
RT5	TEMP. SENSOR

4. Field Wiring



5. Electric Characteristics

Model	Power supply		Compressor		Outdoor fan motor	
	Hz	Voltage	MSC	RLA	Power output	FLA
ASF-12A	50	220~240	5.3	26	24	0.27
ASF-18A	50	220~240	8.75	36.8	53	0.61
ASF-24A	50	220~240	11.4	61	53	0.66
ASF-30A	50	220~240	17.65	97	250	1.38
ASF-36A	50	380	6.58	61	250	1.38
ASF-48A	50	380	8.22	66	65	0.7
ASF-60A	50	380	9.77	67	65	0.7

Symbols:

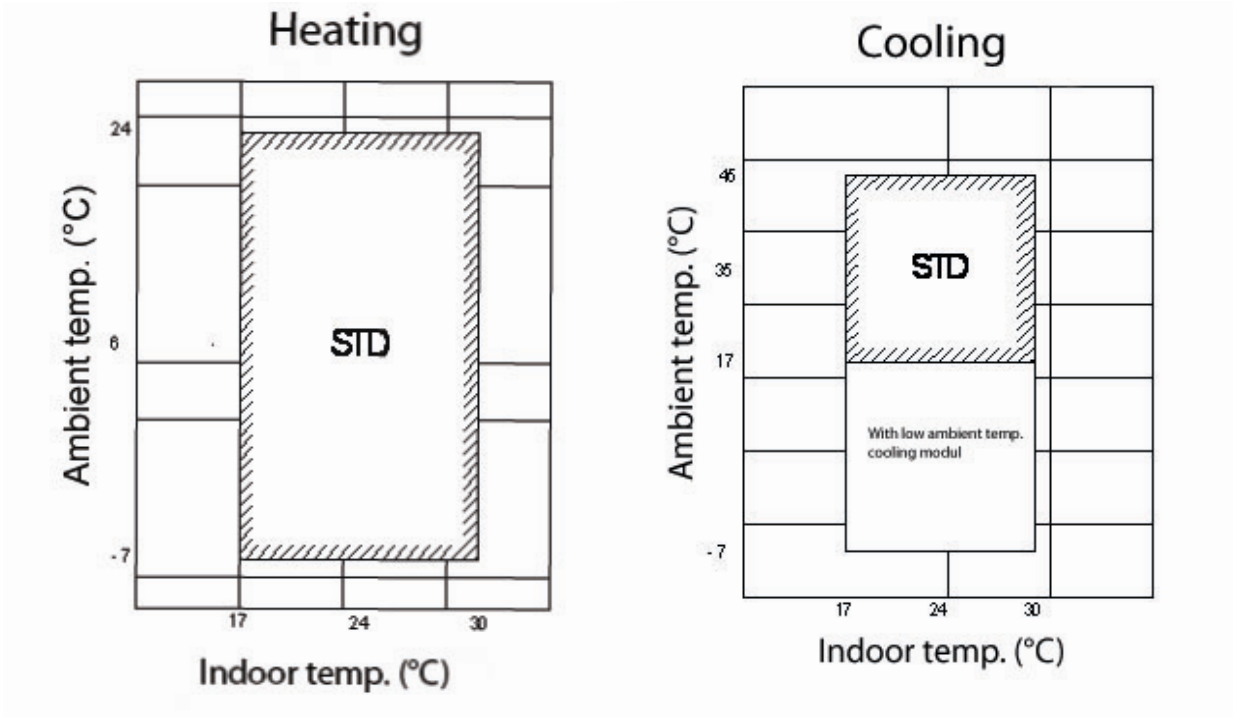
MSC: Max. Starting Current

RLA: Rated Locked Current

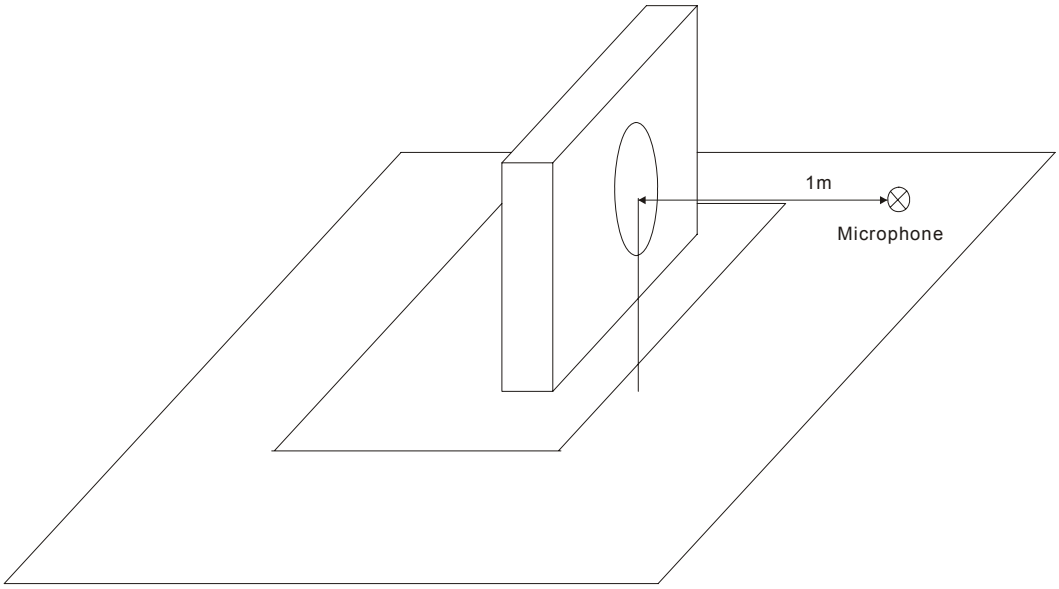
FLA: Full Load Amps.

6. Operation Limits

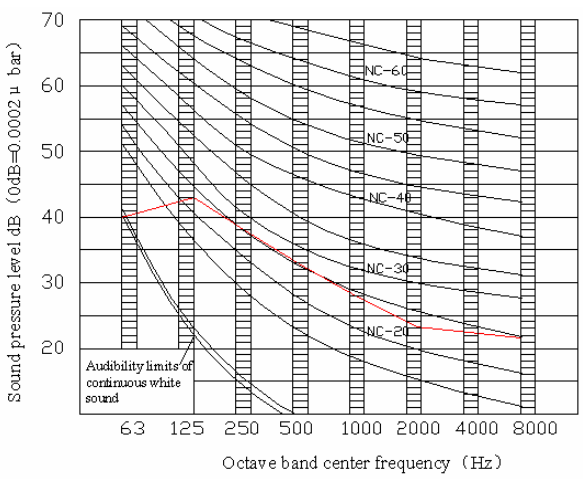
Ensure the operating temperature is in allowable range.



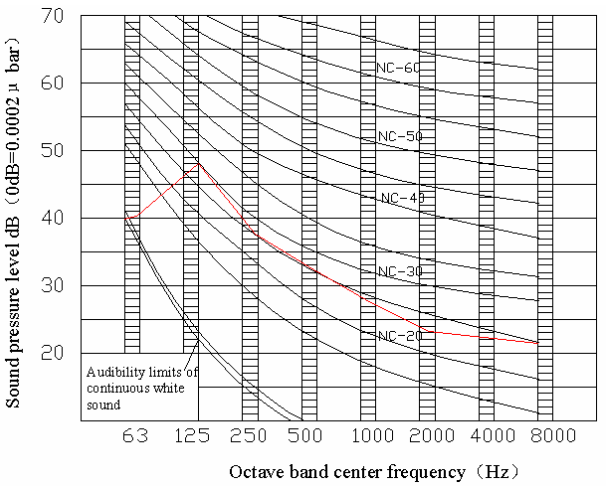
7. Sound levels



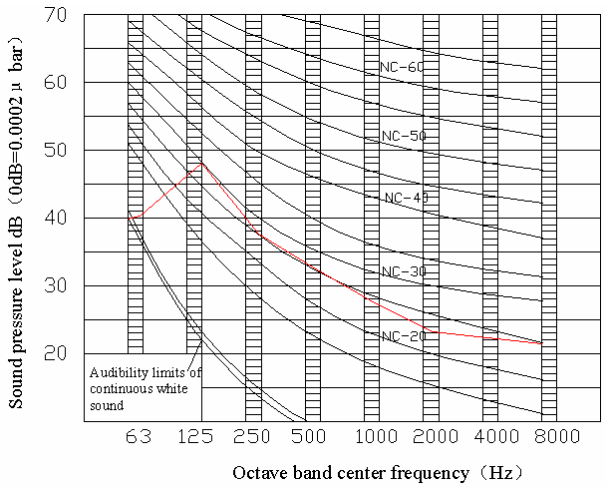
12000 Btu/h



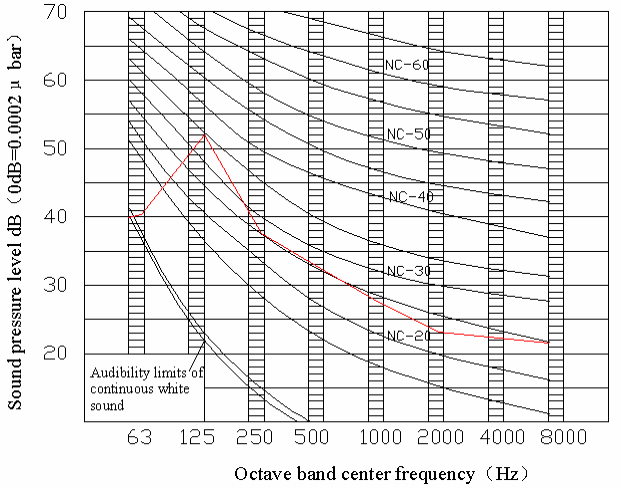
18000 Btu/h



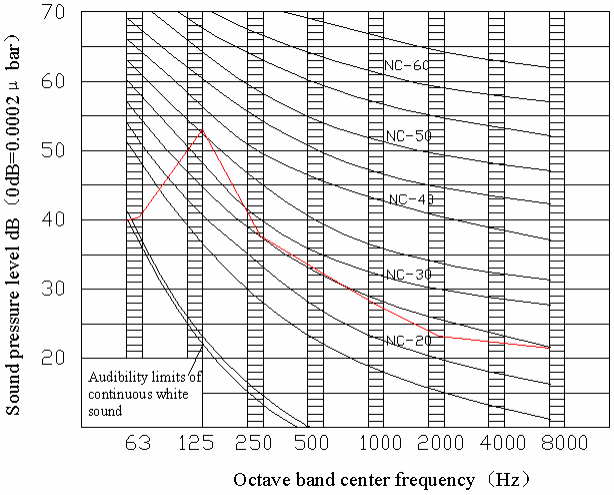
24000 Btu/h



30000 Btu/h & 36000 Btu/h



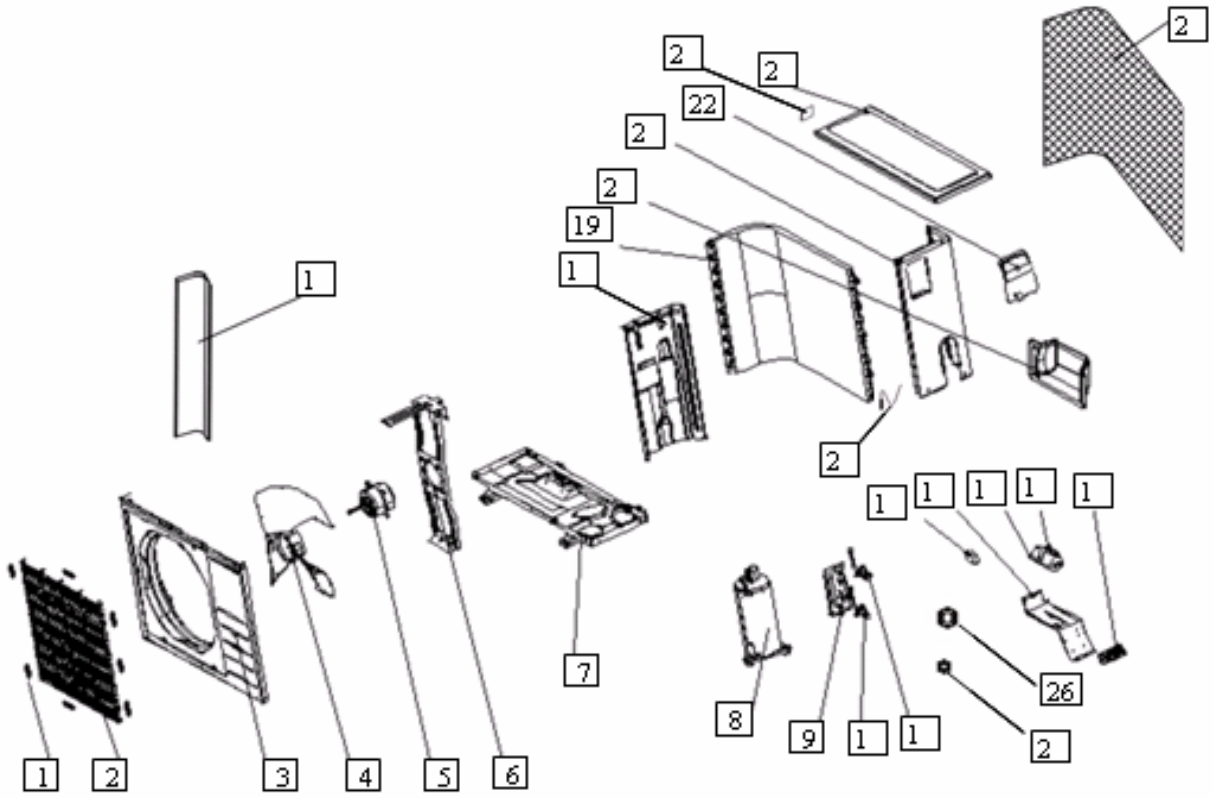
48000 Btu/h & 60000 Btu/h



8. Exploded view

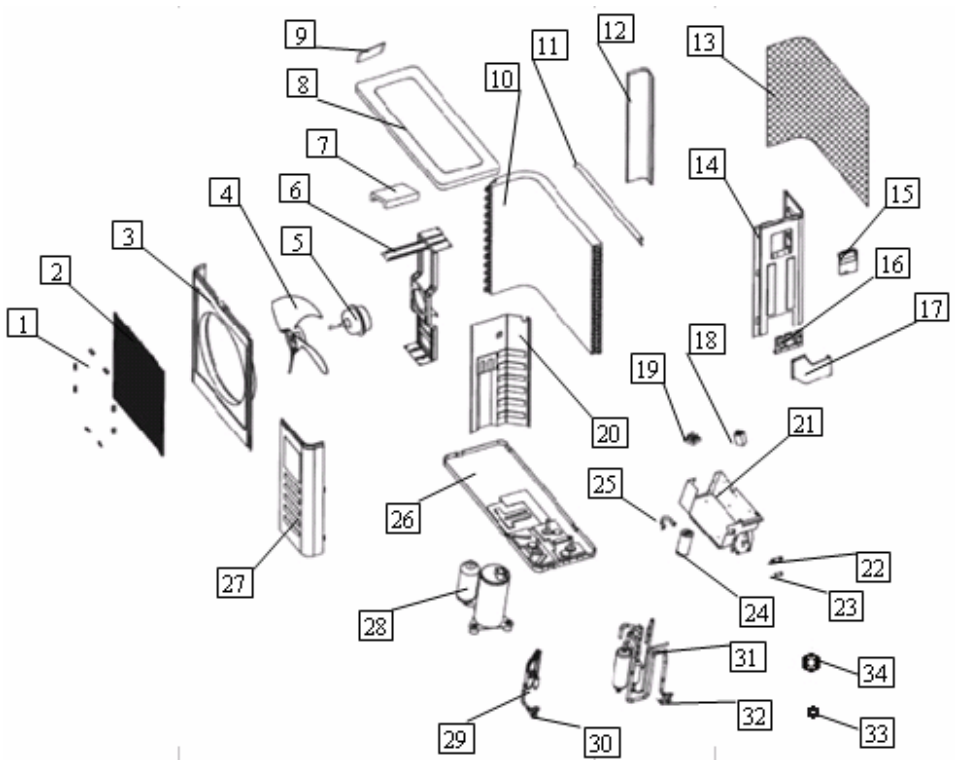
Cooling & Heating

8.1 ASF-12A



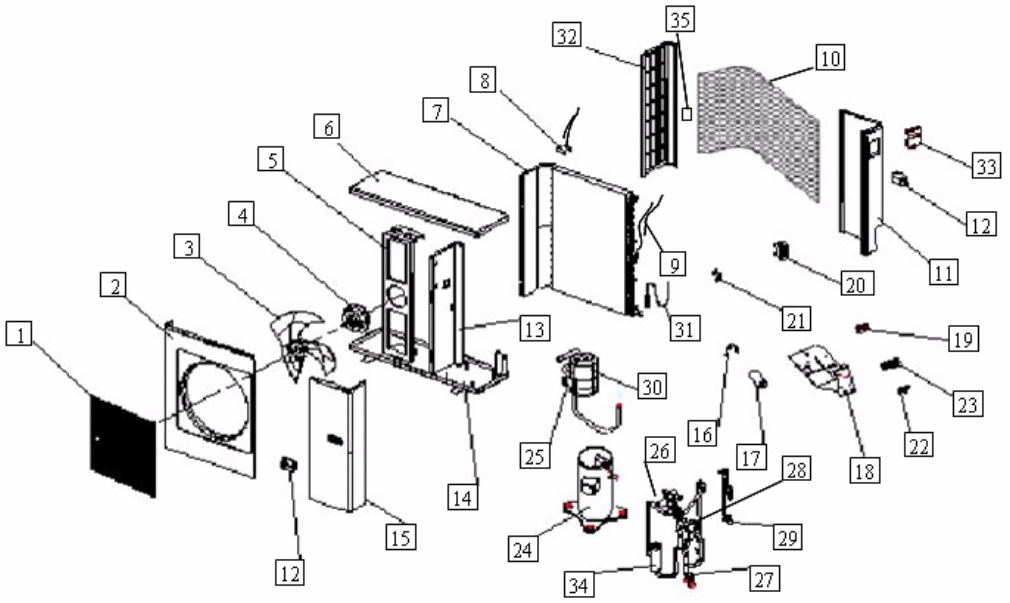
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Clamp for front net	6	15	Capacitor clamp	1
2	Front net	1	16	Wire joint,5p	1
3	Front clapboard	1		Wire joint, 2p	1
4	Propeller fan	1	17	Left supporter	1
5	Fan motor	1	18	Separating board	1
6	Holder for fan motor	1	19	Condenser	1
7	Chassis	1	20	Water collector	1
8	Compressor	1	21	Right clapboard	1
9	Installation plate for valves	1	22	Big handle	1
10	Gas pipe valve	1	23	Cover	1
	4-way valve	1	24	Small handle	1
11	Liquid pipe valve	1	25	Rear net	1
12	Fan motor capacitor	1	26	Copper nut, TLM-C03	1
13	Installation board for E-parts	1	27	Copper nut, TLM-A01	1
14	Compressor capacitor	1	28	Pipe temp sensor ass'y	1

8.2 ASF-18A



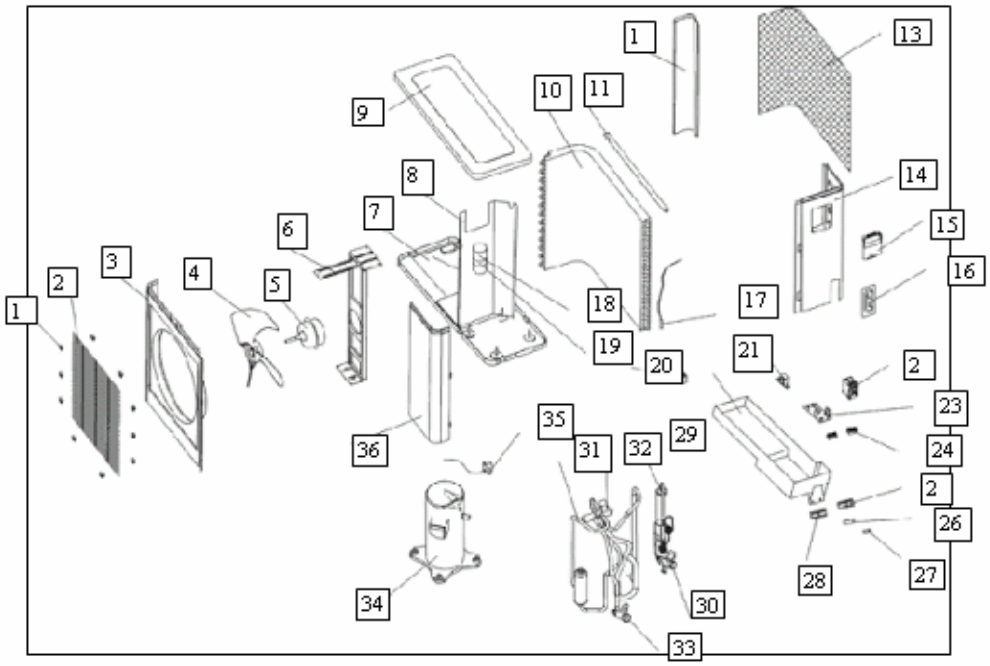
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Clamp for front net	8	19	Wire joint	1
2	Front net	1	20	Separating board	1
3	Front clapboard	1	21	Installation board for E-parts	1
4	Propeller fan	1	22	Washer for wire joint	1
5	Fan motor	1	23	Clamp for wiring	1
6	Holder for fan motor	1	24	Compressor capacitor	1
7	Foam over holder for motor	1	25	Capacitor clamp	1
8	Cover	1	26	Chassis	1
9	Little handle	1	27	Front right clapboard	1
10	Condenser	1	28	Compressor	1
11	Support board for motor holder	1	29	Liquid valve assy	1
12	Left clapboard	1	30	Liquid pipe valve	1
13	Rear net	1	31	4-Ways valve assy	1
14	Rear right clapboard	1	32	Gas pipe valve	1
15	Big handle	1		Four-way Valve	1
16	Installation plate for valves	1	33	Copper nut, TLM-A01	1
17	Water collector	1	34	Copper nut, TLM-C03	1
18	Fan motor capacitor	1			

8.3 ASF-24A



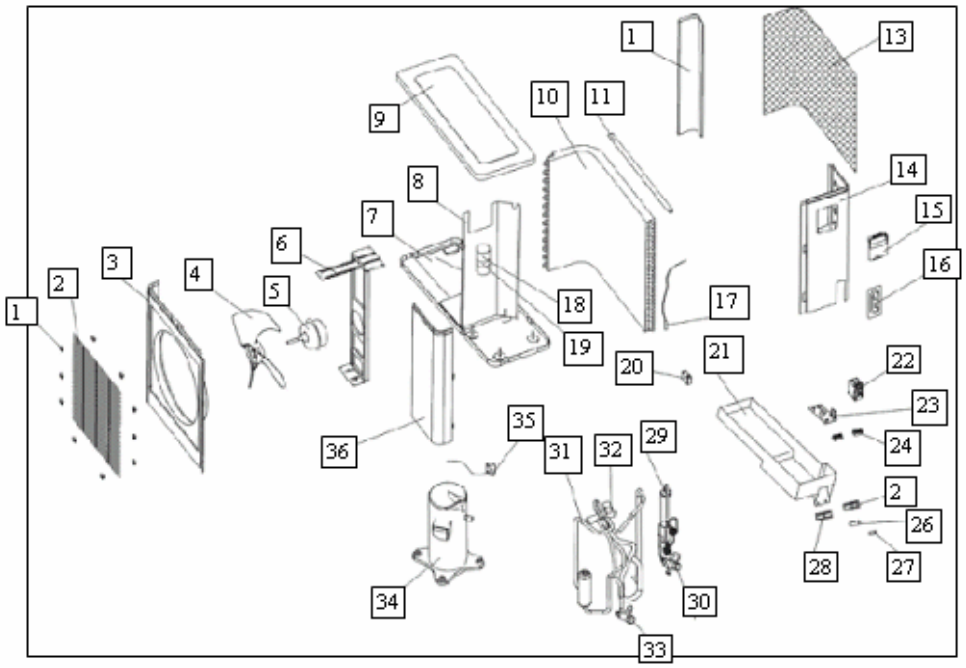
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Front net	1	20	AC contactor	1
2	Cabinet,Front	1	21	Capacitor,Fan Motor	1
3	Fan,Propeller	1	22	Wire Clamp	1
4	Fan Motor	1	23	Terminal Block,5p	1
5	Mount,Fan Motor	1		Terminal Block,2p	1
6	Topcap Ass'y	1	24	Compressor	1
7	Condenser Ass'y	1	25	Fixture,Segregator	1
8	Inlet Pipe for Condenser	1	26	4-way Valve	1
9	Outlet Pipe for Condenser	1		4-way Valve Solenoid	1
10	Rear Net	1	27	Liquid pipe valve	1
11	Support board,Back side	1	28	Capillary pipe	1
12	Handle	2	29	Gas pipe valve	1
13	Separating board	1	30	refrigerant Container	1
14	Base Pan Ass'y	1	31	Pipe temp. sensor assy	1
15	Cabinet,Front-Right	1	32	Support board, Left Side	1
16	Capacitor Clamp	1	33	Big handle	1
17	Capacitor, Compressor	1	34	Filter	1
18	Wiring Installation Panel	1	35	Small Handle	1
	Washer for wire joint	1	36	Copper nut, TLM-B02	1
	Terminal install board	1	37	Copper nut, TLM-D04	1
19	Terminal Block,2p	1			

8.4 ASF-30S



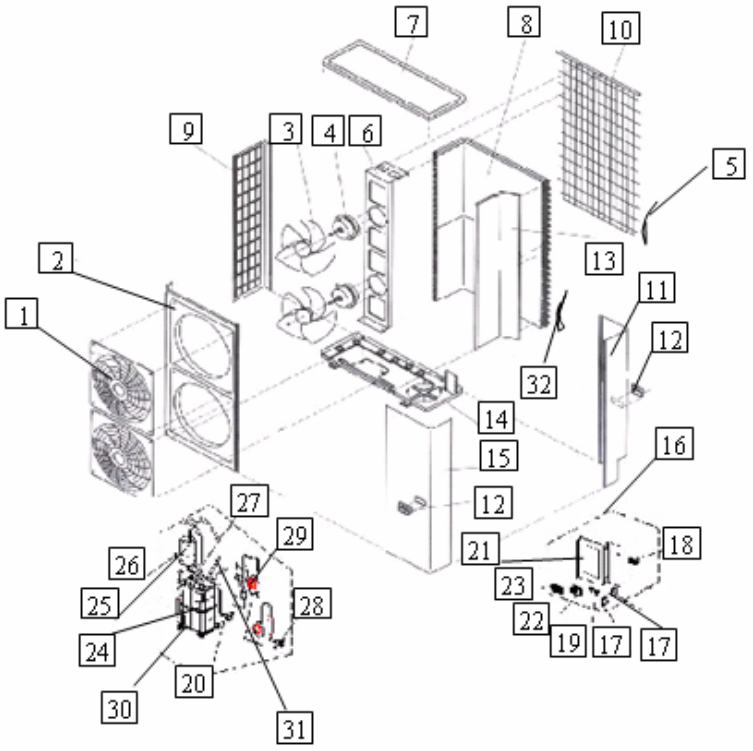
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Clamp for front net	10	20	Fan motor capacitor	1
2	Front net	1	21	Installation board for E-parts	1
3	Front clapboard	1	22	AC contactor	1
4	Propeller fan	1	23	Main control box	1
5	Fan motor	1	24	Wire joint for multiplexer	2
6	Holder for fan motor	1	25	Wire joint for multiplexer	1
7	Chassis	1	26	Washer for wire joint	1
8	Separating board	1	27	Wire clamp	1
9	Cover	1	28	Wire joint for power	1
10	Condenser I	1	29	Liquid valve assy	1
	Condenser II	1	30	Liquid valve	1
11	Support board for motor holder	1	31	4-way valve assy	1
12	Left supporting bar	1	32	4-way Valve	1
13	Rear net	1	33	Gas valve	1
14	Rear right clapboard	1	34	Compressor	1
15	Big handle	1	35	Discharge temp sensor	1
16	Installation plate for valves	1	36	Front right clapboard	1
17	Pipe temp sensor	1	37	Copper nut, TLM-C03	1
18	Refrigerant container	1	38	Copper nut, TLM-E05	1
19	Container clamp	1			

8.5 ASF-36A



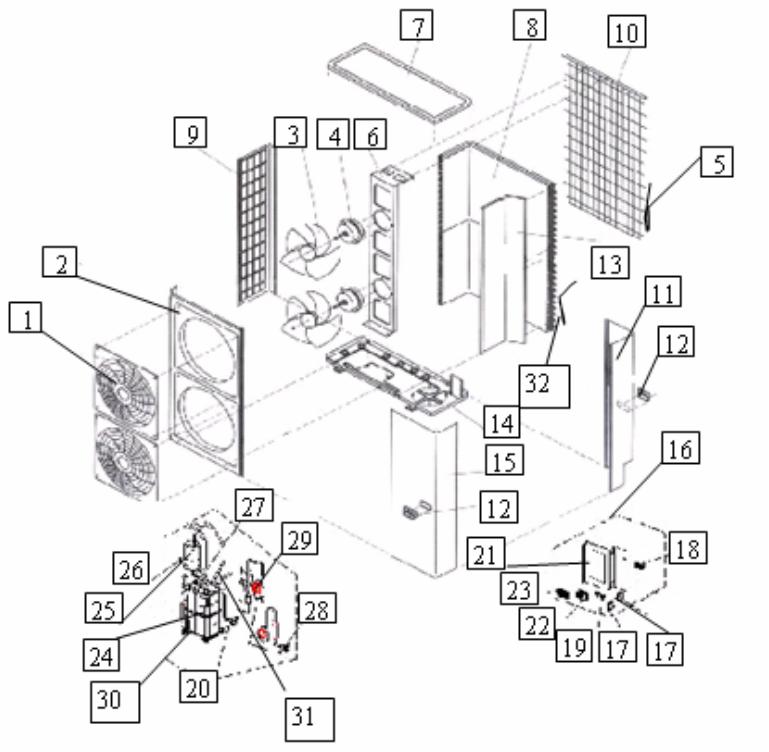
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Clamp for front net	10	20	Fan motor capacitor	1
2	Front net	2	21	Installation board for E-parts	1
3	Front clapboard	1	22	AC contactor	1
4	Propeller fan	1	23	Main control board,Outdoor unit	1
5	Fan motor	1	24	Wire joint for multiplexer	2
6	Holder for fan motor	1	25	Wire joint for multiplexer	1
7	Chassis	1	26	Washer for wire joint	1
8	Separating board	1	27	Wire clamp	1
9	Cover	1	28	Wire joint for power	1
10	Condenser I	1	29	Liquid valve assy	1
	Condenser II	1	30	Liquid valve	1
11	Support board for motor holder	1	31	4-way valve assy	1
12	Left supporting bar	1	32	4-way valve	1
13	Rear net	1	33	Gas valve	1
14	Rear right clapboard	1	34	Compressor	1
15	Big handle	1	35	Discharge temp sensor	1
16	Installation plate for valves	1	36	Front right clapboard	1
17	Pipe temp sensor	1	37	Copper nut, TLM-C03	1
18	Refrigerant container	1	38	Copper nut, TLM-E05	1
19	Container clamp	1			

8.6 ASF-48A



No.	Part Name	Quantity	No.	Part Name	Quantity
1	Front net	2	17	Capacitor,Fan Motor	2
2	Cabinet,Front	1	18	Terminal Block,2p	3
3	Fan,Propeller	2	19	AC contactor	1
4	Fan Motor	2	20	Low Pressure Valve	1
5	Room temp. sensor,outdoor	1	21	PCB board,outdoor unit	1
6	Mount,Fan Motor	1	22	Terminal Block,3p	1
7	Topcap Ass'y	1	23	Wire joint for power	1
8	Condensator I	1	24	Compressor	1
	Condensator II	1	25	Refrigerator Container	1
9	Left Side Cabinet	1	26	Fixture,Segregator	1
10	Supporter, Rear Cabinet	1	27	Four-way Valve	1
10	Supporter, Rear Cabinet	1		Four-way Valve Solenoid	1
11	Cabinet,Back side	1	28	Low Pressure Valve	1
12	Handle	2	29	Capillary Tube Ass'y	1
13	Plate,Sound-proof	1	30	Electric heat belt for comp	1
14	Base Pan Ass'y	1	31	Discharge temp controller	1
15	Cabinet,Front Side	1	32	Pipe temp. sensor	1
16	E-control box, assy	1			

8.7 ASF-60A



No.	Part Name	Quantity	No.	Part Name	Quantity
1	Guard fan	2	17	Capacitor,Fan Motor	2
2	Cabinet,Front	1	18	Terminal Block,2p	3
3	Fan,Propeller	2	19	AC contactor	1
4	Fan Motor	2	20	Low Pressure Valve .	1
5	Room temp. sensor,outdoor	1	21	PCB board,outdoor unit	1
6	Mount,Fan Motor	1	22	Terminal Block,4p	1
7	Topcap Ass'y	1	23	Wire joint for power	1
8	Condensator I	1	24	Compressor	1
	Condensator II	1	25	Refrigerator Container	1
9	Left Side Cabinet	1	26	Fixture,Segregator	1
10	Supporter, Rear Cabinet	1	27	4-way Valve	1
10	Supporter, Rear Cabinet	1		4-way Valve Solenoid	1
11	Cabinet,Back side	1	28	Low Pressure Valve	1
12	Handle	2	29	Capillary Tube Ass'y	1
13	Plate,Sound-proof	1	30	Electric heat belt for comp	1
14	Base Pan Ass'y	1	31	Discharge temp controller	1
15	Cabinet,Front Side	1	32	Pipe temp. sensor	1
16	E-control box, assmy	1			

9. Troubleshooting

9.1 Indoor unit's LED indication of trouble

NO.	Protection or Malfunction	Operation lamp	Timer lamp	Defrosting lamp	Auto recover
1	Indoor temp. sensor abnormal	×	□	×	Yes
2	Indoor heat exchanger sensor abnormal	□	×	×	Yes
3	Outdoor heat exchanger sensor abnormal	×	×	□	Yes
4	Outdoor abnormal	□	□	□	Yes
5	EEPROM abnormal	□	□	×	No

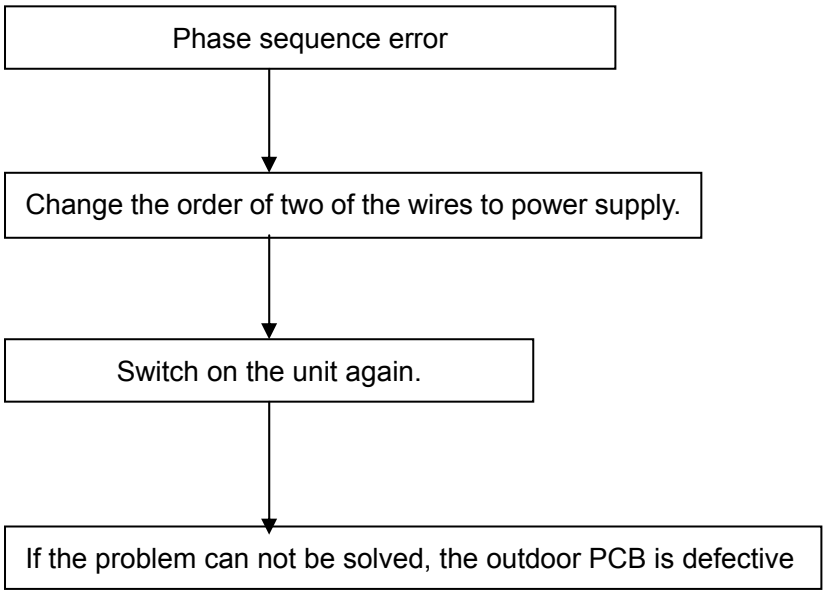
×——Extinguish ; □——Flash at 5Hz

9.2 LEDs' for the indication of outdoor trouble

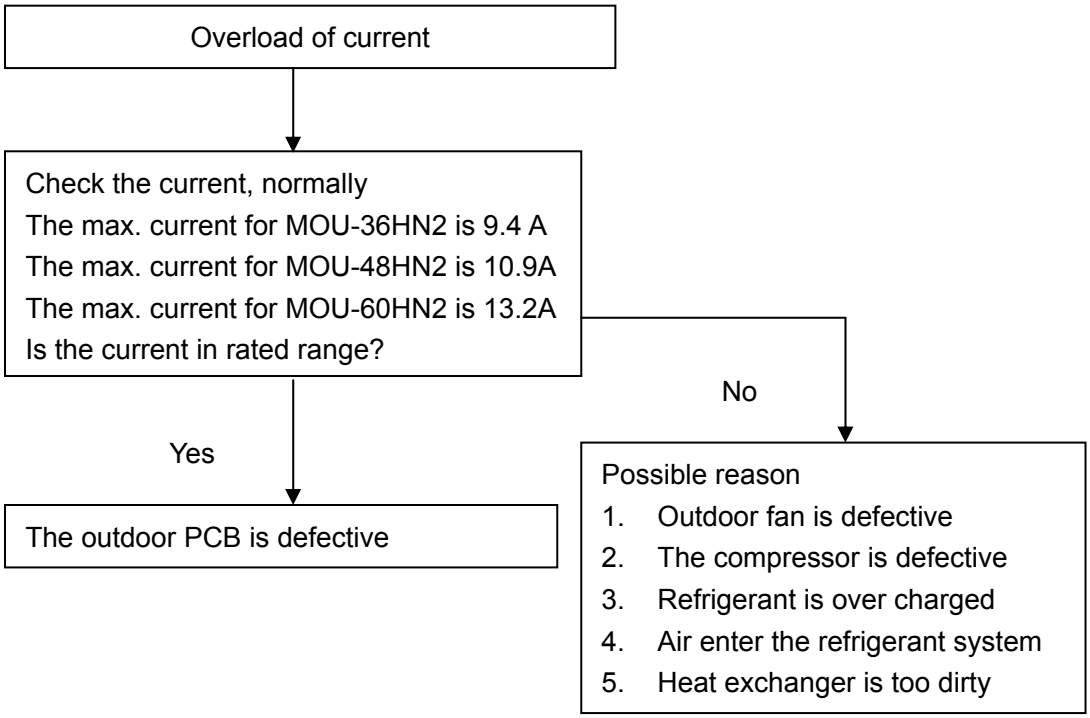
MOU-36HN1, MOU-48HN1, MOU-60HN1 380-415V, 3 phase

Type	Contents	LED1	LED2	LED3
Protection	Phase sequence	Flash	Off	Off
Protection	Overload of current	Off	Off	Flash
Protection	Lack of phase	Flash	Off	Off
Protection	Protection of pressure	Flash	Flash	Off
Protection	Open-circuit and short-circuit trouble of T3	Off	Flash	Flash
Protection	Open-circuit and short-circuit trouble of T4	Off	Flash	Off
Protection	High temperature protection of condenser	Flash	Flash	Flash

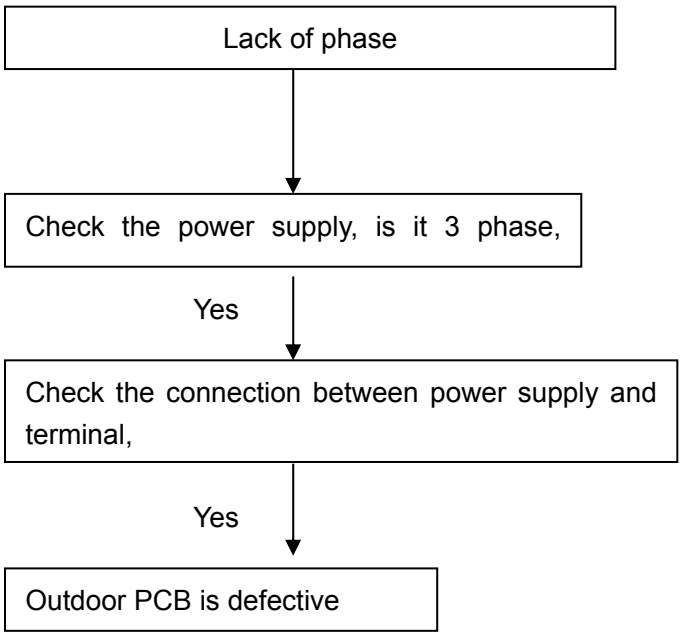
9.2.1 Phase sequence error:


Phase sequence error
Change the order of two of the wires to power supply.
Switch on the unit again.
If the problem can not be solved, the outdoor PCB is defective

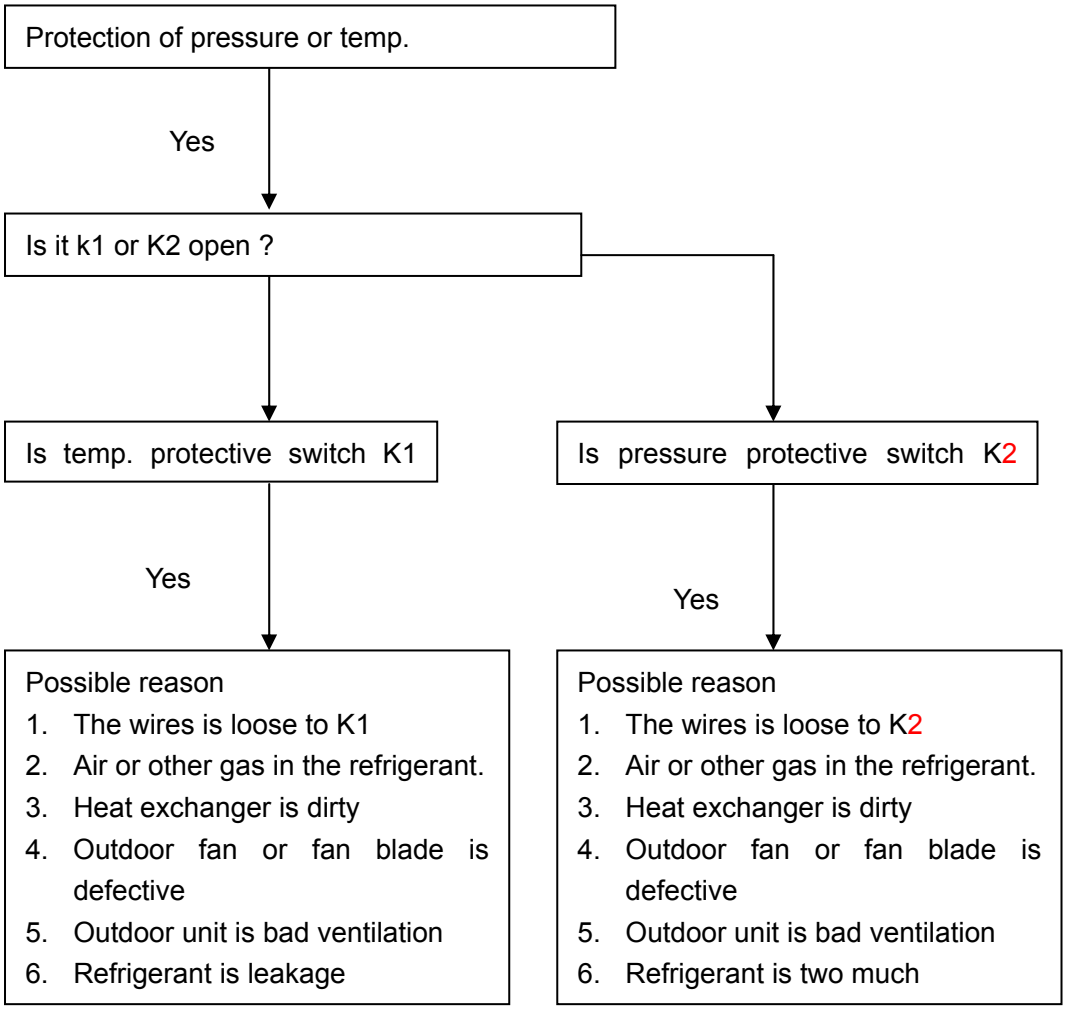
9.2.2 Overload of current


Overload of current
Check the current, normally
The max. current for MOU-36HN2 is 9.4 A
The max. current for MOU-48HN2 is 10.9A
The max. current for MOU-60HN2 is 13.2A
Is the current in rated range?
No
Yes
The outdoor PCB is defective
Possible reason
1. Outdoor fan is defective
2. The compressor is defective
3. Refrigerant is over charged
4. Air enter the refrigerant system
5. Heat exchanger is too dirty

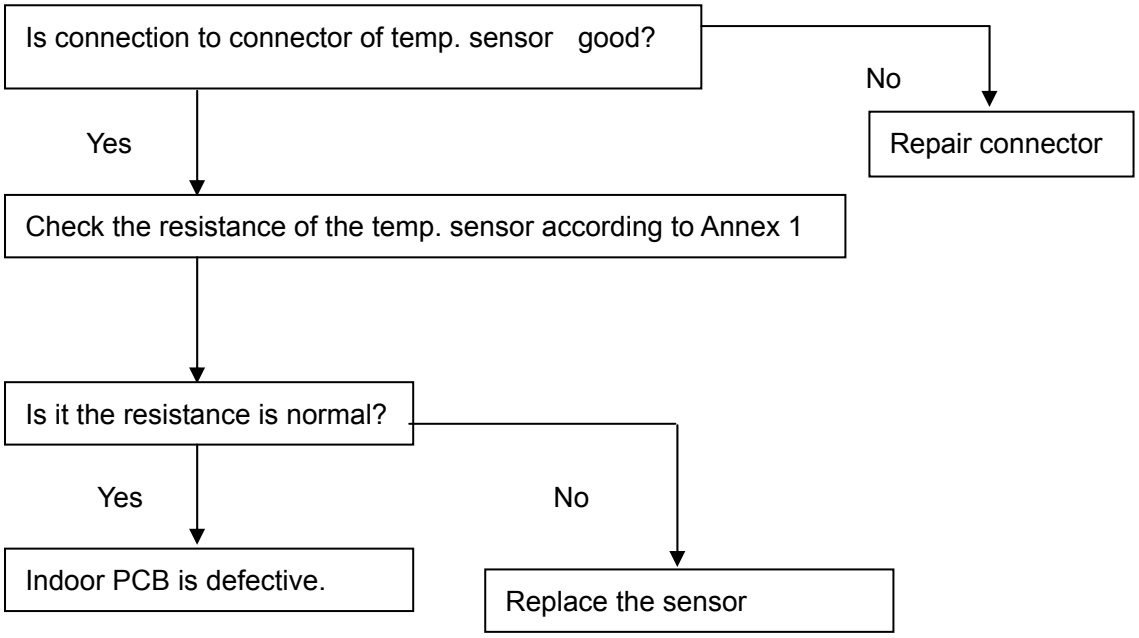
9.2.3 Lack of phase


Lack of phase
Check the power supply, is it 3 phase,
Yes
Check the connection between power supply and terminal,
Yes
Outdoor PCB is defective

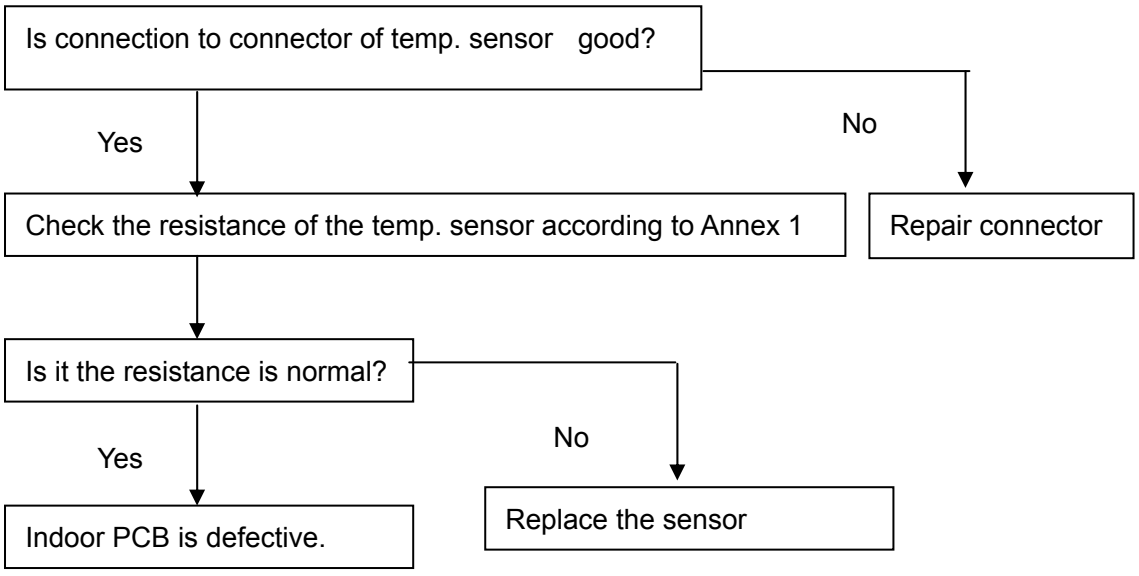
9.2.4 Protection of pressure or temp.


Protection of pressure or temp.
Yes
Is it k1 or K2 open ?
Is temp. protective switch K1
Is pressure protective switch K2
Yes
Yes
Possible reason
1. The wires is loose to K1
2. Air or other gas in the refrigerant.
3. Heat exchanger is dirty
4. Outdoor fan or fan blade is defective
5. Outdoor unit is bad ventilation
6. Refrigerant is leakage
Possible reason
1. The wires is loose to K2
2. Air or other gas in the refrigerant.
3. Heat exchanger is dirty
4. Outdoor fan or fan blade is defective
5. Outdoor unit is bad ventilation
6. Refrigerant is two much

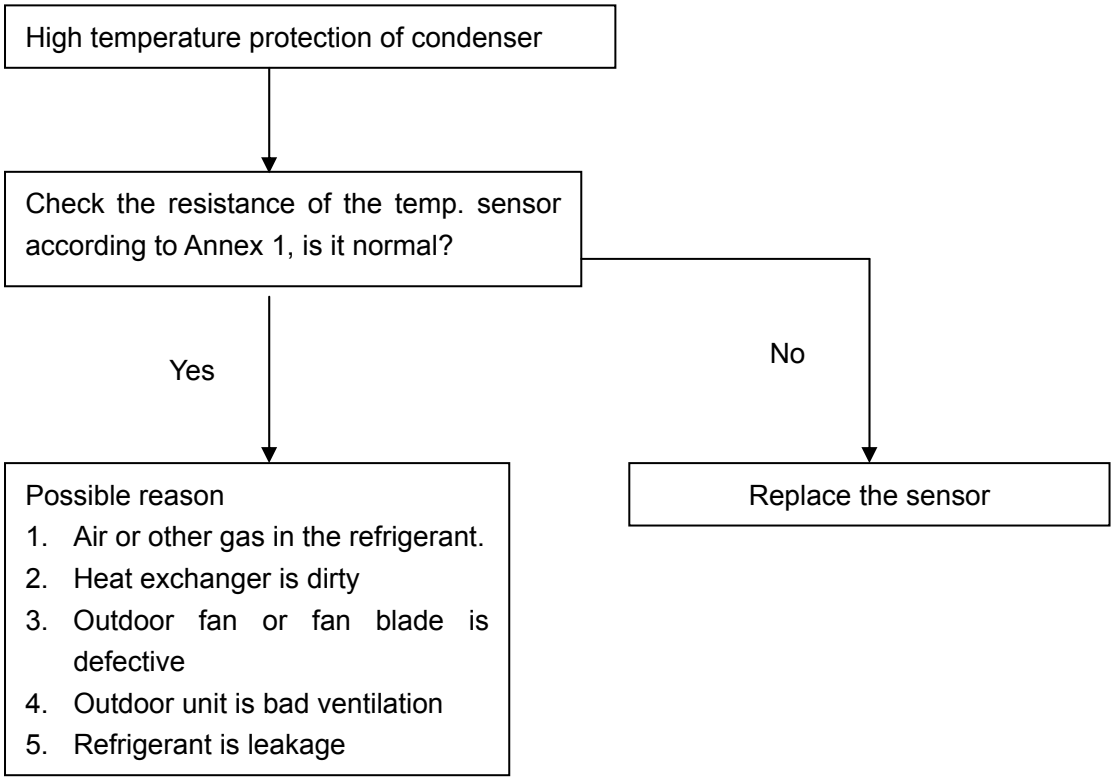
9.2.5 Open-circuit and short-circuit trouble of T3



9.2.6 Open-circuit and short-circuit trouble of T4



9.2.7 High temperature protection of condenser


High temperature protection of condenser
Check the resistance of the temp. sensor according to Annex 1, is it normal?
Yes
No
Possible reason
1. Air or other gas in the refrigerant.
2. Heat exchanger is dirty
3. Outdoor fan or fan blade is defective
4. Outdoor unit is bad ventilation
5. Refrigerant is leakage
Replace the sensor

9.3 Troubles and Solutions

If any the following abnormal conditions occur, turn off the power supply immediately. Please contact our dealer.		
TROUBLES	Indicator lamps flash rapidly, after your disconnecting and connecting the unit, the situation is the same.	
	Fuse or circuit breaker work frequently.	
	Foreign matter or water has fallen into the unit.	
	Remote controller is disabled or the switch is out of hand.	
	Any other unusual conditioner is observed.	
If any of the following conditions occur, check your unit and resolve corresponding problems referring to given remediation. If the trouble can't be settled contact our dealer.		
Trouble	Cause	Solutions
Unit does not start	Power failure.	Wait for the comeback of power
	Power switch is open.	Switch on the power
	Fuse of power switch may have blown.	Replace the fuse
	Batteries of remote controller are exhausted.	Replace the batteries
	The time is not start-up time you have set.	Wait or cancel the time set.
Air flowing normally with low cooling(heating) effect	Temperature is not set correctly.	Set the temperature properly.
	Door or window is open.	Close door and window.
	Air filter is blocked with dust or dirtiness.	Clean the air filter.
	Inlet/outlet of indoor/outdoor units are blocked.	Clear all blockages.
	Inlet/outlet of indoor/outdoor units are blocked.	Clear the blockage, then restart your operation.
	Be in 3 minutes protection of compressor	Wait

◆ NOTE: Do not replace electric wire or repair the air conditioner by yourself to avoid possible danger.

9.4 Troubles and solutions concerning the remote controller

Please make the following check before asking for repair or maintenance.

Trouble	Cause	Solutions
CAN NOT CHANGE THE FAN SPEED SETTING	Check if the mode display on the LCD is AUTO	The Indoor Unit will select fan speed automatically when AUTO mode is selected.
	Check if the mode display on the LCD is DRY	The Indoor Unit will select fan speed automatically when the unit is on DRY mode.

The transmission symbol does not flash		
Symptom	Checking items	Cause
Press ON/OFF button, the remote controlling signals can not be transmitted	Check if the remote controller has run out of power	When the battery was out, transmission signals can not be sent

Temperature display disappear		
Symptom	Checking items	Cause
Temperature Display does not light.	Check if the mode display on the LCD is FAN ONLY	You can not set the temperature when the unit is on FAN ONLY mode.

The Display Goes Off		
Symptom	Checking items	Cause
The indication on the display disappears after a lapse of time.	Check whether the timer operation has come to an end when the OFF TIMER is indicated on the display.	The air conditioner operation stops since the set time elapsed.
The ON TIMER indicators go off after a lapse of certain time.	Check whether the timer operation is started when the ON TIMER is indicated on the display.	When the time set to start the air conditioner is reached, the air conditioner will automatically start and the appropriate indicator will go off.

The Signal Receiving Tone does Not Sound		
Symptom	Checking items	Cause
No receiving tone sounds from the indoor unit even when the ON/OFF button is pushed.	Check whether the signal transmitter of the remote controller is properly directed to the receiver of the indoor unit when the ON/OFF button is pushed.	Direct the signal transmitter of the remote controller to the receiver of the indoor unit, and then repeatly push the ON/OFF button twice.
Buttons on the remote controller don't work.		Press Reset button.

Part 4
Installation

Installation……65

1. Refrigerant pipe installation

1.1. Measure the necessary length of the connecting pipe, and make it by the following way.

a. Connect the indoor unit at first, then the outdoor unit.

Bend the tubing in proper way. Do not harm them.

CAUTIONS:

- Daub the surfaces of the flare pipe and the joint nuts with frozen oil, and wrench it for 3~4 rounds
- With hands before fasten the flare nuts.

Be sure to use two wrenches simultaneously when you connect or disconnect the pipes.

Tubing size	Torque
6.35	1420~1720N.cm(144~176kgf.cm)
9.52	3270~3990N.cm(333~407kgf.cm)
12.7	4950~6030N.cm(504~616kgf.cm)
16	6180~7540N.cm(630~770kgf.cm)
19	9720~11860N.cm(990~12106kgf.cm)

b. The stop value of the outdoor unit should be closed absolutely (as original state). Every time you connect it, first loosen the nuts at the part of stop value, then connect the flare pipe immediately (in 5 minutes). If the nuts have been loosened for a long time, dusts and other impurities may enter the pipe system and may cause malfunction later. So please expel the air out of the pipe with refrigerant before connection.

c. Expel the air after connecting the refrigerant pipe with the indoor unit and the outdoor unit. Then fasten the nuts at the repair-points.

1.2. Locate The Pipe

a. Drill a hole in the wall (suitable just for the size of the wall conduit), then set on the fittings such as the wall conduit and its cover.

b. Bind the connecting pipe and the cables together tightly with binding tapes. Do not let air in, which will cause water leakage by condensation.

c. Pass the bound connecting pipe through the wall conduit from outside. Be careful of the pipe allocation to do no damage to the tubing.

1.3. Connect the pipes.

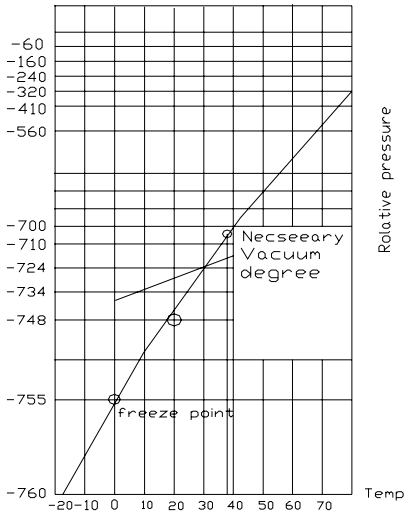
1.4. Then, open the stem of stop values of the outdoor unit to make the refrigerant pipe connecting the indoor unit with the outdoor unit in fluent flow.

1.5. Be sure of no leakage by checking it with leak detector or soap water.

1.6. Cover the joint of the connecting pipe to the indoor unit with the soundproof / insulating sheath (fittings), and bind it well with the tapes to prevent leakage.

2. Vacuum dry and leakage checking

2.1. Vacuum Dry: use vacuum pump to change the moisture (liquid) into steam (gas) in the pipe and discharge it out of the pipe to make the pipe dry. Under one atmospheric pressure, the boiling point of water (steam temperature) is 100°C. Use vacuum pump to make the pressure in the pipe near vacuum state, the boiling point of water falls relatively. When it falls under outdoor temperature, the moisture in the pipe will be vaporized.

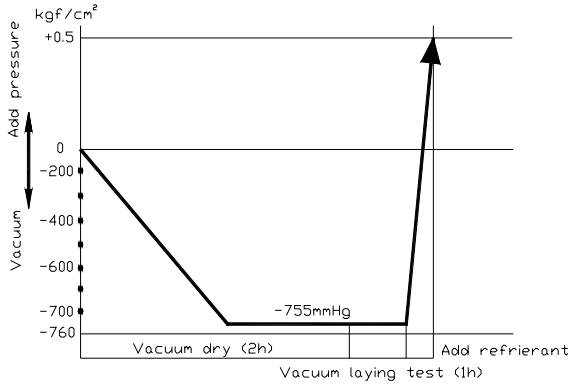


2.2. Vacuum dry procedure

There are two methods of vacuum dry due to different construction environment: common vacuum dry, special vacuum dry.

a) Common vacuum dry procedure

- Vacuum dry (for the first time)---connect the all-purpose detector to the inlet of liquid pipe and gas pipe, and run the vacuum pump more than two hours (the vacuum pump should be below -755mmHg)
- If the pump can't achieve below -755mmHg after pumping 2 hours, moisture or leakage point will still exist in the pipe. At this time, it should be pumped 1 hour more.
- If the pump can't achieve -755mmHg after pumping 3 hours, please check if there are some leakage points.
- Vacuum placement test: place 1 hour when it achieves -755mmHg, pass if the vacuum watch shows no rising. If it rises, it shows there's moisture or leakage point.
- Vacuuming from liquid pipe and gas pipe at the same time.
- Sketch map of common vacuum dry procedure.



b) Special vacuum dry procedure

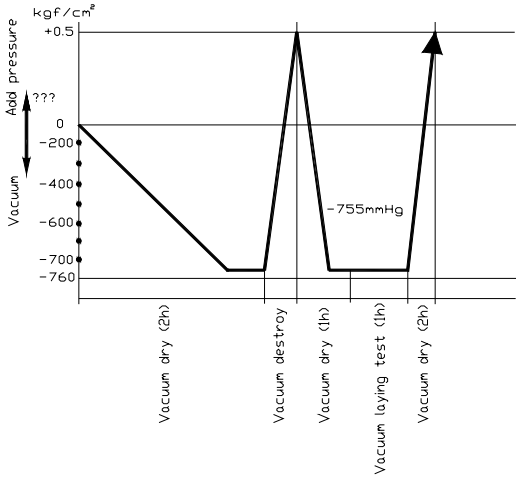
- This vacuum dry method is used in the following conditions:
- ◆ There's moisture when flushing the refrigerant pipe.
- ◆ Rainwater may enter into the pipe.
- Vacuum dry for the first time ····· 2h pumping

c) Vacuum destroy for the second time ····· Fill nitrogen to 0.5Kgf/cm2
Because nitrogen is for drying gas, it has vacuum drying effect during vacuum destroy. But if the moisture is too much, this method can't dry thoroughly. So, please pay more attention to prevent water entering and forming condensation water.

d) Vacuum dry for the second time·····1h pumping
Determinant: Pass if achieving below -755mmHg. If -755mmHg can't be achieved in 2h, repeat procedure c) and d).

e) Vacuum placing test ····· 1h

f) Sketch map of special vacuum dry procedure



3. Additional charge

3.1. When the length of the one-way pipe is less than 5m, additional refrigerant charge after vacuuming is unnecessary.

3.2. When the length of one-way pipe is over 5m, the additional charge quantity is as follows (unit in gram):
Calculation method

Refrigerant	Liquid diameter (mm)	Unit amount (g/m)	Formula
R410A	Φ6.35	30	(L-5)×30
	Φ9.53	65	(L-5)×65
	Φ12.7	90	(L-5)×90

Remark: 1-The additional refrigerant charge is simply related with the liquid pipe diameter.
2-In the up formula, "L" means total length of liquid pipe(unit: m).

4. Water drainage

4.1. Gradient and Supporting

4.1.1 Keep the drainpipe sloping downwards at a gradient of at least 1/100. Keep the drainpipe as short as possible and eliminate the air bubble.

4.1.2 The horizontal drainpipe should be short. When the pipe is too long, a prop stand must be installed to keep the gradient of 1/100 and prevent bending. Refer to the following table for the specification of the prop stand.

	Diameter	Distance between the prop stands
Hard PVC pipe	25~40mm	1.5~2m

4.1.3. Precautions

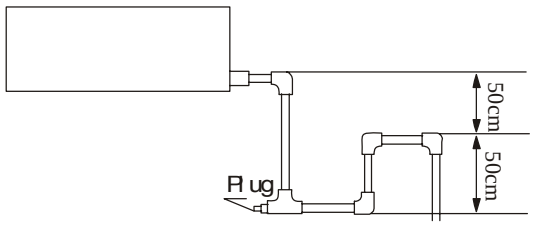
a) The diameter of drainpipe should meet the drainage requirement at least.
b) The drainpipe should be heat-insulated to prevent atomization.
c) Drainpipe should be installed before installing indoor unit. After powering on, there is some water in water-receiver plate. Please check if the drain pump can operate correctly.
d) All connection should be firm.
e) Wipe color on PVC pipe to note connection.
f) Climbing, horizontal and bending conditions are prohibited.
g) The dimension of drainpipe can't less than the connecting dimension of indoor drainpipe.
h) Heat-insulation should be done well to prevent condensation.
i) Indoor units with different drainage type can't share one convergent drainpipe.

4.2 Drainpipe Trap

4.2.1. If the pressure at the connection of the drainpipe is negative, it needs to design drainpipe trap.

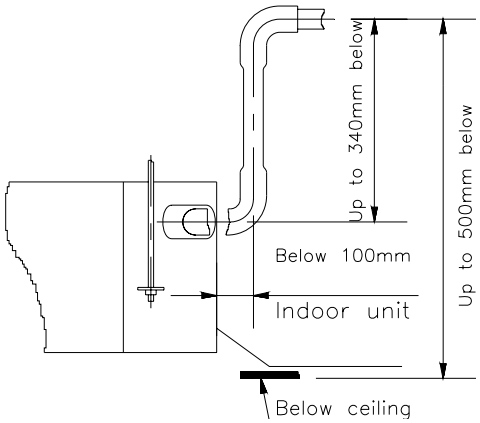
4.2.2. Every indoor unit needs one drainpipe trap.

4.2.3. A plug should be designed to do cleaning.



4.3 Upwards drainage(drain pump)

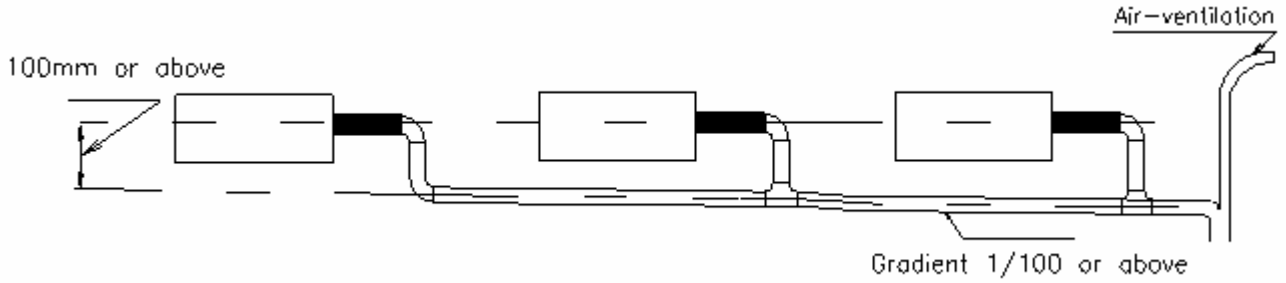
4.3.1. To ensure the gradient 1/100, the drainpipe can be lifted to 340mm. After upwards, place downwards, or it will cause malfunction to drain pump.



4.4 Convergent drainage

4.4.1. The number of indoor units should be as small as possible to prevent the traverse main pipe overlong.

4.4.2. Indoor unit with drain pump and indoor unit without drain pump should be in different drainage system.



4.4.3. Selecting the diameter

Number of connecting indoor units→Calculate drainage volume→Select the diameter

Calculate allowed volume =Total cooling capacity of indoor units(HP)×2 (l/ hr)

	Allowed volume(lean 1/100) (l/ hr)	I.D. (mm)	Thick
Hard	Q_V≤14	Φ 25	3.0
Hard	14< Q_V ≤88	Φ 30	3.5
Hard	88< Q_V≤175	Φ 40	4.0
Hard	175< Q_V≤334	Φ 50	4.5
Hard	334< Q_V	Φ 80	6.0

4.5 Drainage test

Drainage without drain pump –

After finishing drainpipe installation, pour some water into the water receiver plate to check if the water flows smoothly.

5. Insulation work

5.1 Insulation material and thickness

5.1.1. Insulation material

Insulation material should adopt the material which is able to endure the pipe's temperature: no less than 70□ in the high-pressure side, no less than 120□ in the low-pressure side(For the cooling type machine, no requirements at the low-pressure side.)

◆ Example: Heat pump type----Heat-resistant Polyethylene foam (withstand above 120□)

Cooling only type---- Polyethylene foam (withstand above 100□)

5.1.2. Thickness choice for insulation material

Insulation material thickness is as follows:

	Pipe diameter (mm)	Adiabatic material thickness
Refrigerant pipe	Φ6.4—Φ25.4	10mm
	Φ28.6—Φ38.1	15mm
Drainage pipe	Inner diameterΦ20—Φ32	6mm

5.2 Refrigerant pipe insulation

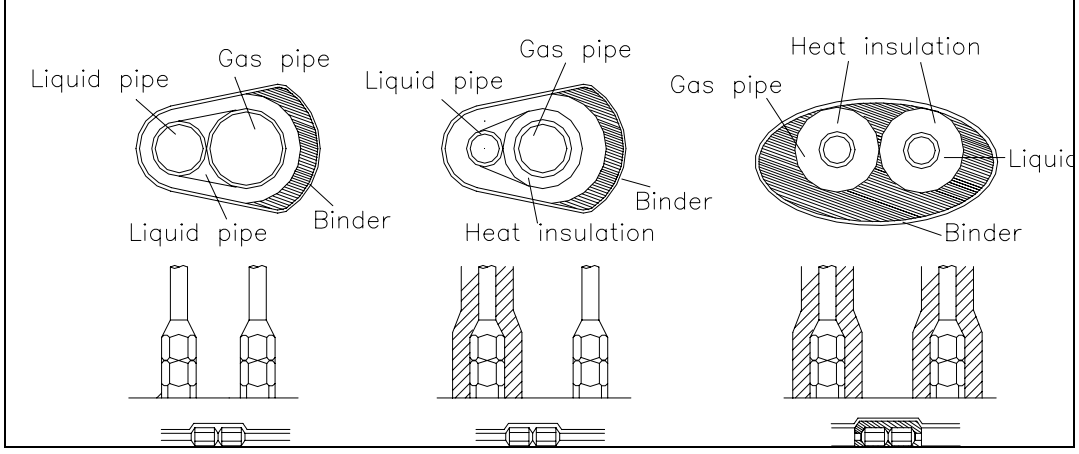
5.2.1. Work Procedure

a) Before laying the pipes, the non-jointing parts and non-connection parts should be heat insulated.

b) When the gas proof test is eligible, the jointing area, expanding area and the flange area should be heat insulated

5.2.2. Insulation for non-jointing parts and non-connection parts

wrong	right	
Gas pipe and liquid pipe should not be put together to insulate	Insulate the gas pipe (cooling only)	Insulate the gas pipe and liquid pipe

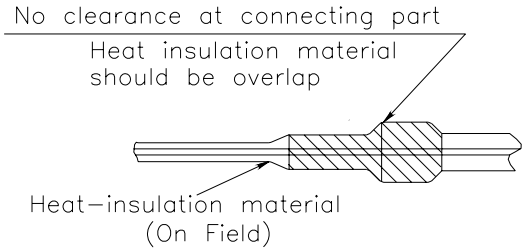


For construction convenience, before laying pipes, use insulation material to insulate the pipes to be deal with, at the same time, at two ends of the pipe, remain some length not to be insulated, in order to be welded and check the leakage after laying the pipes.

5.2.3. Insulate for the jointing area, expanding area and the flange area

a) Insulate for the jointing area, expanding area and the flange area should be done after checking leakage of the pipes

b) Make sure there's no clearance in the joining part of the accessorial insulation material and local preparative insulation material.



5.3 Drainage pipe insulation

The connection part should be insulated, or else water will be condensing at the non-insulation part.

5.4 Note

5.4.1 The jointing area, expanding area and the flange area should be heat insulated after passing the pressure test

5.4.2 The gas and liquid pipe should be heat insulated individually, the connecting part should be heat insulated individually.

5.4.3 Use the attached heat-insulation material to insulate the pipe connections (pipes' tie-in ,expand nut) of the indoor unit

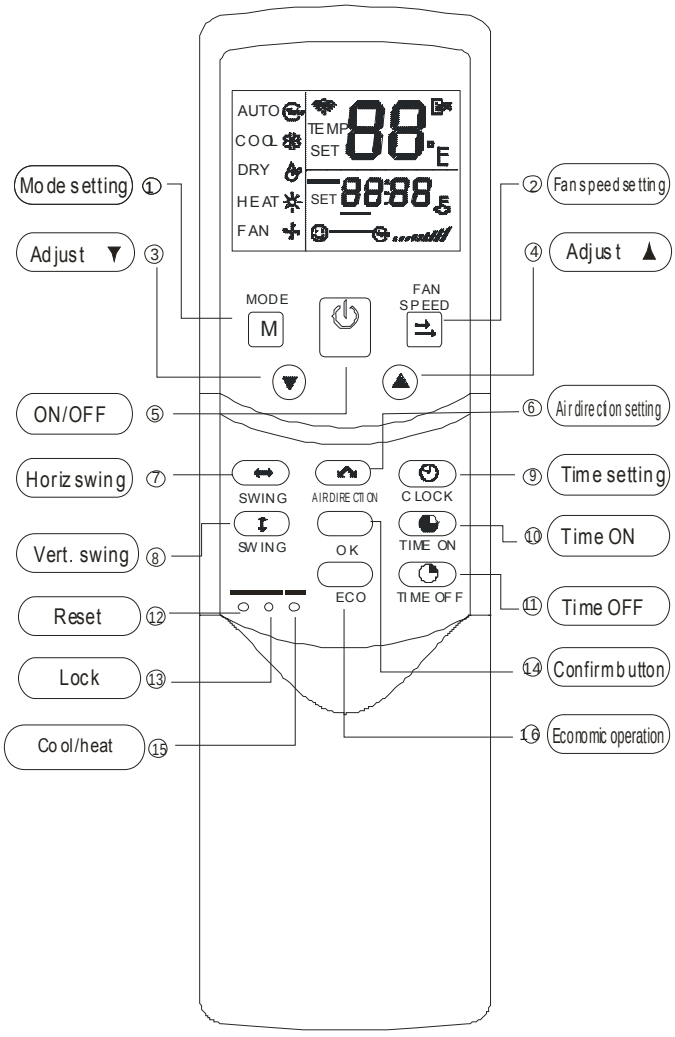
Part 5
Control

Control……..73

1 Remote controller

There's one model R05-BG/E.

The below is R05-BG/E remote controller.



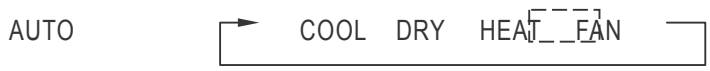
Visual photo

MODEL AND SPECIFICATION

Model	R05/BGE
Rated voltage	3.0V(2 pieces of LR03 7# batteries)
Min voltage for sending signal of CPU	2.4V
Effective receiving distance	8m~11m
Operation condition	-5~60OC

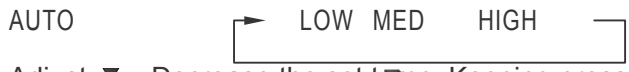
BUTTONS AND FUNCTION

MODE: Once pressing, running mode will be selected in the following sequence:



NOTE: No heating mode for cool only type unit.

FAN SPEED: Fan speed will be selected in following sequence once pressing this button:



Adjust ▼ : Decrease the set temp. Keeping pressing will decrease the temp with 1°C per 0.5s.

Adjust ▲ : Increase the set temp. Keeping pressing will increase the temp with 1°C per 0.5s.

ON/OFF: For turning on or turning off the air conditioner.

AIR DIRECTION: Activate swing function of air deflector. Once pressing, air deflector will turn 6°. For normal operation and better cooling and heating effect, deflector will not turn to the degree which is the state of deflector when the unit is turned off.(Only available when remote controller is used with corresponding unit.)

HORIZ SWING: Activate or turn off horizontal swing function. (Only available when remote controller is used with corresponding unit.)

VERT SWING: Activate or turn off vertical swing function.
(Only available when remote controller is used with corresponding unit.)

CLOCK: Display the current time. (12:00 is displayed when resetting or electrifying for the first time.)
Press CLOCK for 5s, icon indicating hour will flash with 0.5s. Press it again; icon indicating minute will flash with 0.5s. ▼and▲are used to adjust the figure. Setting or modification is effective only by pressing OK button to make confirmation.

TIME ON: For time ON setting. Once pressing this button, the time will increase by 0.5 hour. When the set time exceeds 10 hours, pressing the button will increase the time by 1 hour. Adjusting the figure to 0.00 will cancel time ON setting.

TIME OFF: For time OFF setting. Once pressing this button, the time will increase by 0.5 hour. When the set time exceeds 10 hours, pressing the button will increase the time by 1 hour.
Adjust the figure to 0.00 will cancel time ON setting.

RESET (inner located): Press this button with a needle of 1mm to cancel the current setting and reset remote controller.

LOCK (inner located): Press this button with a needle of 1mm to lock or unlock the current setting.

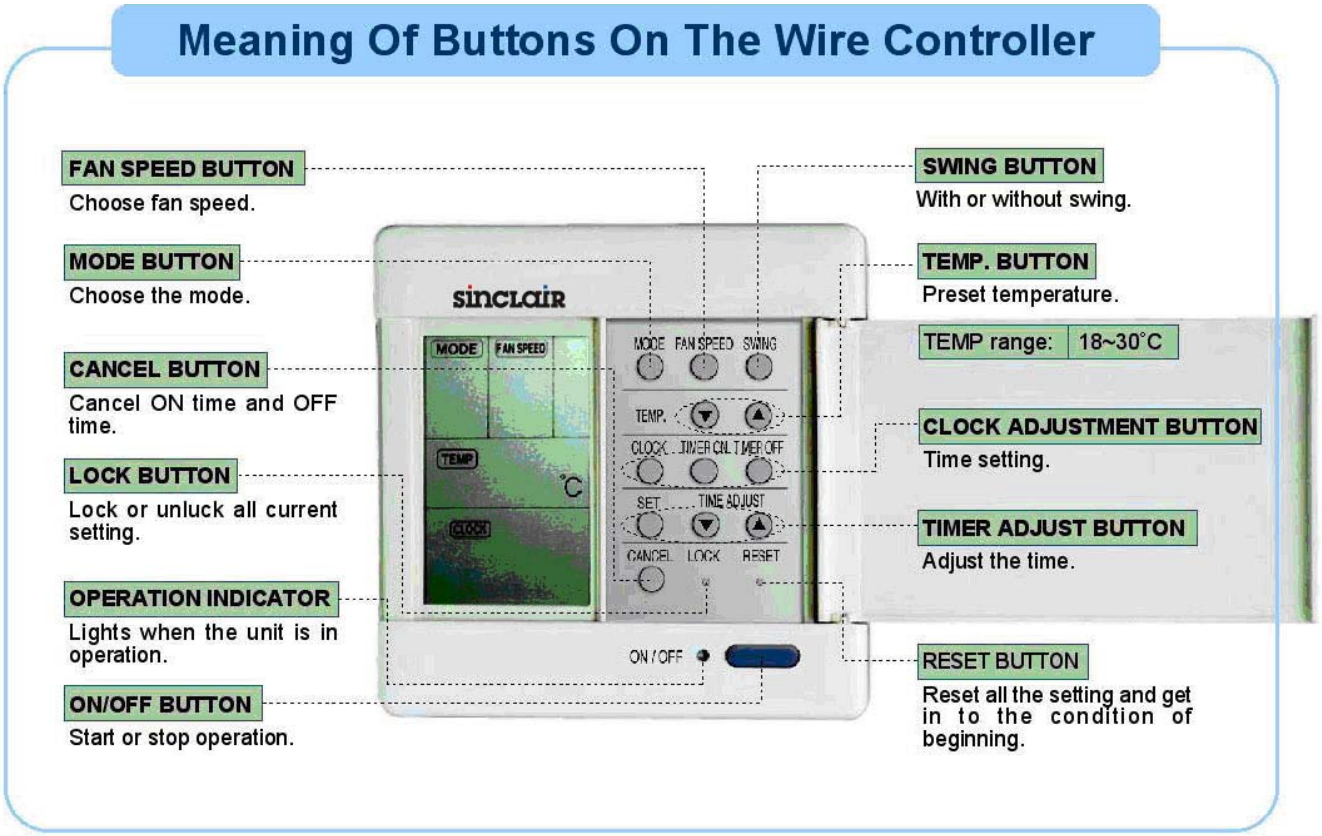
OK: Used to confirm the time setting and modification.

COOL/HEAT (inner located): Press this button with a needle of 1mm to shift mode between COOL only and COOL&HEAT. During setting, background light will be lightened. Factory default mode is COOL&HEAT.

ECO: Activate or turn off economic operation mode. It is suggested to turn on this function when sleeping. (Only available when remote controller is used with corresponding unit.)

2. Wire controller

2.1 KJR-01B/dP(T)

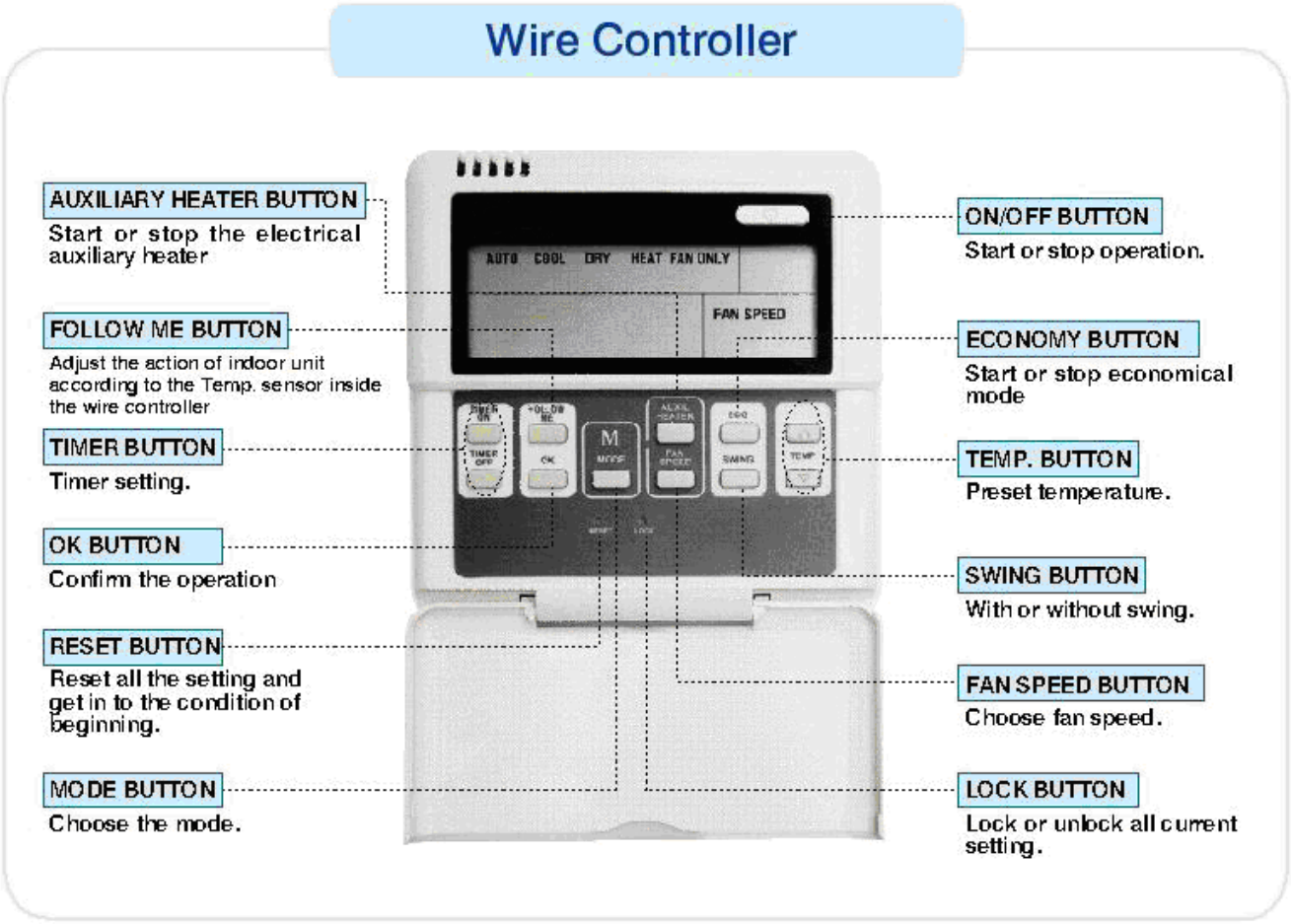


General constant wire controller is available for cooling&heating type as default Its function of Mid-speed Fan can be adjusted by the dial switch (Sw1) in the main panel of wire controller, which is shown as follows:

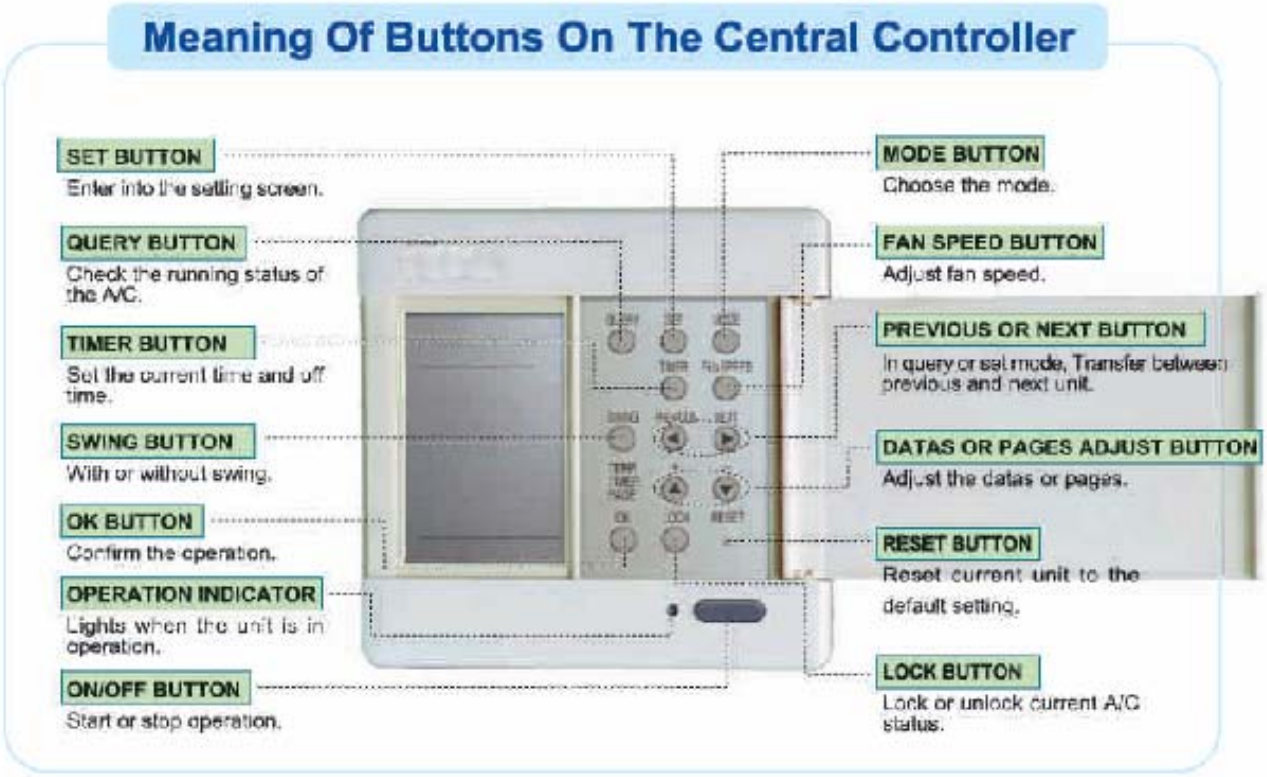
SW1	SW1	SW1	SW1
1 ON 2 ON	1 ON 2 OFF	1 OFF 2 ON	1 OFF 2 OFF
Mid-speed Fan cooling&heating	Mid-speed Fan cooling only	No mid-speed Fan cooling&heating	No mid-speed Fan cooling only

Customers can adjust it according to the model and their requirement. It is necessary to re-electrify after adjustment.

2.2 KJR-10B/dP(T)



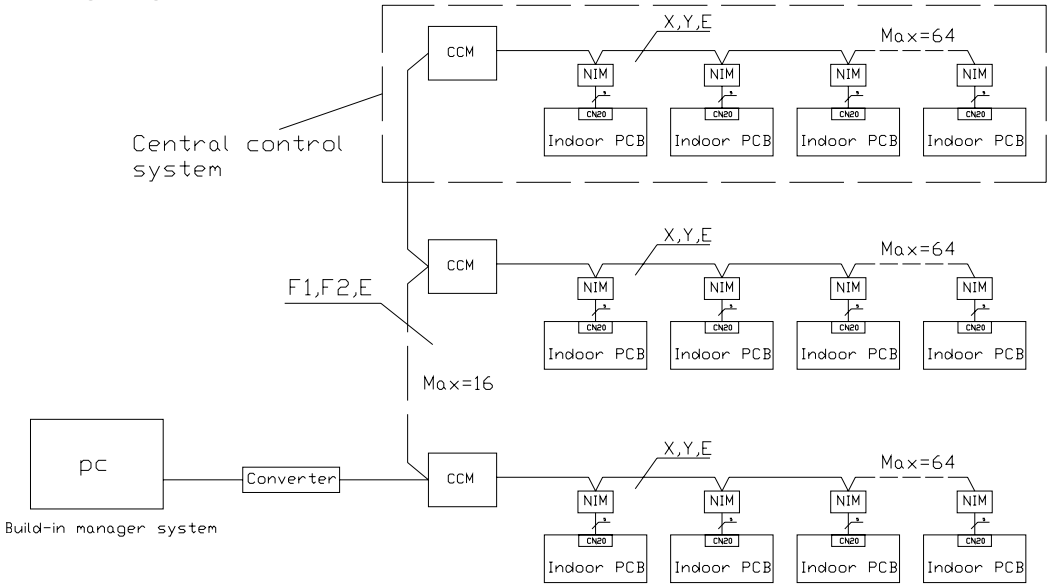
3. Central controller


Meaning Of Buttons On The Central Controller
SET BUTTON
Enter into the setting screen.
QUERY BUTTON
Check the running status of the A/C.
TIMER BUTTON
Set the current time and off time.
SWING BUTTON
With or without swing.
OK BUTTON
Confirm the operation.
OPERATION INDICATOR
Lights when the unit is in operation.
ON/OFF BUTTON
Start or stop operation.
MODE BUTTON
Choose the mode.
FAN SPEED BUTTON
Adjust fan speed.
PREVIOUS OR NEXT BUTTON
In query or set mode, Transfer between previous and next unit.
DATAS OR PAGES ADJUST BUTTON
Adjust the datas or pages.
RESET BUTTON
Reset current unit to the default setting.
LOCK BUTTON
Lock or unlock current A/C status.

3.1 Preparation

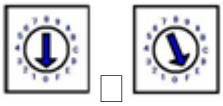
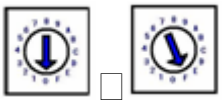
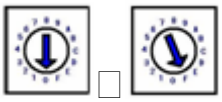
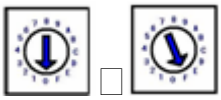
- ❑ Network function is reserved in R410A U series indoor PCB.
- ❑ To realize network control, the following components are required:
- ❑ U series indoor & outdoor units;
- ❑ CCM01/E (Central Control Monitor);
- ❑ NIM01/E (Network interface module);
- ❑ Network software set (including a software CD, aconverter, a softdog).

3.2. Wiring diagram



3.3 NIM Address setting

Every air-conditioner in network has its unique address to distinguish each other. Address code of air-conditioner in LAN is set by code switch(S1/S2) on NIM, and the set range is 0-63.

S1	S2	Address Code
		00 ~ 15
		16 ~ 31
		32 ~ 47
		48 ~ 63

3.4 CCM Address setting

The PC or gateway can connect to a maximum of 16 CCM. Every CCM works as one network area and be distinguished by setting code switch. The setting range is 0-15.